UGANDA PROTECTORATE

Annual Report
of the
Department of Agriculture

For the Year Ended 31st December, 1960

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UGANDA PROTECTORATE

DEPARTMENT OF AGRICULTURE

Annual Report

For the year ended 31st December, 1960.

I. INTRODUCTION

(*a*) Policy

1. There has been no change in the basic policy of the Department, which may be summarised as follows:—

(i) To ensure the food supplies of the people of the country;

(ii) to conserve the natural resources;

(iii) to improve the quality and increase the quantity of our cash crops;

(iv) to blend the whole into a sound system of agriculture.

2. Despite the efforts of the Department over the past 40 years the general level of farming is still at the subsistence level and the problem in front of us is so urgent that we can no longer afford to dissipate our forces, limited as they are, in an attempt to help those who will not help themselves. Concentration of effort is essential and it was, therefore, decided to give the maximum assistance to the progressive or emergent farmer in order to develop a class of yeoman farmer. This is not to say that other farmers are being neglected, as they all need guidance, particularly in such routine matters as the early planting and spacing of cotton, and the timely uprooting and burning of the old cotton plants, which affect the well-being of all farmers.

3. The bulk of the cultivating is still done with the hoe, and an all-out effort is being made to replace the hoe by the plough and to make the farmers ox-cultivation minded in those areas where cattle can be kept and to encourage tractor cultivation where this is not possible. The emphasis is, therefore, on row planting to obviate the tedious and time-consuming hand weeding and thinning, particularly of the grain crop which is the principal bottle-neck to more progressive farming.

4. The African farmer is under-capitalised and in many instances has neither the incentive nor the means to improve his standard of farming. To break through this level of subsistence agriculture it was therefore decided that he must be given the " tools with which to do the job ". To this end it was decided to make loans freely available to those who really need them, and who show they have the will to progress, and, at the same time, to subsidise where necessary the price of essential equipment to bring it within the means of the Progressive Farmer to

purchase. Detailed plans for both credit and subsidy schemes had reached an advanced stage by the end of the year and will be put into effect in the 1961 cropping season. This is not a new policy but rather the combination of many years of careful investigation and planning, which we trust will now come to fruition.

(*b*) General Review

5. Despite the shortage of field staff the production drive was maintained and special emphasis was placed on the improvement of the quality of all export crops, in view of the increasingly competitive state of overseas markets.

6. The main rains broke early but outside the Northern Province the year, like its predecessor, proved a difficult one for the farmer dependent on annual crops for a livelihood, in that the prolonged mid-season drought curtailed the acreage of crops planted particularly cotton and reduced the yields of all except the early plantings.

7. There was a good carry-over of food from 1959 and supplies were sufficient in all areas during the first half of the year. The food position gave cause for concern in August but with the advent of good planting rains the situation improved rapidly and at the end of the year there were good stocks of millet in the main grain-eating areas and adequate reserves of root crops and other foods in all provinces.

8. Although the 1959/60 cotton crop was 40,000 bales below that of the previous season, the production of over 360,000 bales represented a creditable effort by farmers in view of the difficult planting season. Sales of lint and seed from the crop realised £18,398,000 on the Kampala auctions.

9. The 1960/61 crop experienced even poorer rains during the main planting season. Nevertheless, over 1½ million acres were planted. Owing to delayed planting and shortage of ready cash amongst farmers, the acreage sprayed against pests fell to 5,000 acres. The pedigree seed increase schemes continued and no area planted its own seed. All seed used for planting, amounting to over 20,000 tons was again treated against bacterial blight.

10. The upward trend in the production of permanent crops was well maintained. African-grown coffee other than Bugisu Arabica gave a return of almost £12½ million to primary producers. Coffee exports were valued at £16,987,063. Sugar production exceeded the previous year's record figure by over 10,000 tons whilst sales of made tea passed the 10 million pound mark for the first time. Cocoa planting by African farmers continued.

11. Efforts to improve the quality of fire-cured tobacco with a view to selling leaf surplus to local manufacturing requirements overseas met with only limited success. Nevertheless, expert advice taken during the year confirmed that there are good prospects of securing overseas markets provided proper attention is paid to improving quality at all stages of production.

12. Increased attention was paid to the production of minor cash crops including groundnuts and spices; and a buying season for the former crop was gazetted for the first time since 1954 in Busoga District which is the main producing area.

13. Farmers participated to an increased extent in the processing of their crops and the number of estate coffee factories operated by co-operatives and associations of growers rose to 29. In Acholi District where use of miniature tobacco barns for flue curing is most advanced, 45 per cent of the total crop was cured by the farmers themselves. With tea production arrangements were made whereby African farmers may participate in the industry as outgrowers.

14. At Bukalasa Farm Institute 19 students were awarded their certificates but at Arapai 16 third year students were referred in their final practical examination. Arrangements were made for the starting of a two-year Diploma Course at Bukalasa in early 1961 to replace that now being discontinued at the University College of East Africa. Two District Farm Institutes operated during the year and there was an encouraging response to the training offered. The building of a further three Institutes was completed.

15. Farm planning became the responsibility of the normal extension services and the demand for full planning and improved layouts showed no signs of decreasing. Ways and means were examined of making more capital available to planned, progressive and emergent farmers particularly for the provision of equipment. Increased use was made of ox-weeders in the Eastern and Northern Provinces and considerable experimental work was devoted to the development of a general purpose seeder to facilitate the adoption of row cropping generally.

16. Agricultural competitions were effective in focusing attention on the need for the proper protection of both arable and grazing land and in encouraging the adoption of improved agronomic practices by farmers.

II. WEATHER

17. Except in the Northern Province the year proved a difficult one for farmers, growing annual crops, owing to the prolonged mid-season drought.

18. The dry season was broken more frequently than usual by localised storms in January and February, especially in the south of Buganda. Conditions became progressively more unsettled in March, and the main rains finally broke in the middle of the month. April was a wet month and further good rains were received in all parts of the Protectorate throughout May, with the exception of the Western Province where a dry spell set in during the second week. June and July were exceptionally dry with only localised rain apart from some heavy falls on Mount Elgon. In the Northern Province and in Bunyoro District, heavy and well-distributed rains were received from late July onwards, but elsewhere in the Protectorate the second planting rains did not arrive until well into the second half of August. There were very good rains in September and October, and the favourable weather continued until the middle of November when there was a general decrease in rainfall, except in the extreme south of the Protectorate where the rains continued into December in some areas; otherwise December was generally dry apart from localised storms in the third week.

III. FOOD CROPS AND FOOD SUPPLIES

19. There were adequate supplies of food in all parts of the Protectorate apart from minor shortages in the Western Province in October and November.

The persistent dry weather gave cause for concern in August, but the good second rains enabled large acreages of root crops and other foods to be planted, thus restoring the position.

20. The early rains favoured the main finger millet crop in the Eastern and Northern Provinces, which gave excellent harvests in all districts. In the plantain growing areas of the Eastern Province yields were maintained at a high level throughout the year and this, coupled with the good grain harvest, had the effect of reducing the area planted to root crops; cassava reserves were, however, maintained at a satisfactory level. In Buganda and the Western Province, seasonal shortages of plantains were easily made good by alternative foods. Planting during the second half of the year was delayed, but once there was sufficient rain the work proceeded rapidly and large acreages of sweet potatoes, cassava and pulses were established, all of which gave above average yields with the exception of the bean crop in Western Province which suffered from excessive rain.

21. Further progress was made in planting cassava varieties resistant to mosaic, particularly in the Eastern and Northern Provinces. Attempts to persuade farmers to use Dieldrin for the control of banana weevil, however, again met with a poor response.

22. The year closed with good stocks of finger millet in the main grain-eating areas, and adequate reserves of root crops and other foods in all areas. Local shortages may occur in the south of Ankole and Kigezi districts owing to the influx of refugees, but generally supplies should more than suffice until the 1961 harvests are gathered.

IV. ECONOMIC CROPS

(*a*) Cotton

(i) *1959/60 Season*

23. As the crop year is from 1st May to the 30th April this report deals only with the marketing of the 1959/60 crop.

TABLE A.—COTTON PRODUCTION, 1948/49–1959/60

Season	Estimated acreage	Bales of lint (400 lb.)	Average yield of seed cotton per acre	Average price to growers (100 lb. seed cotton)
			lb.	*Shs. cts.*
1948/49 ..	1,555,371	391,240	333	29 61
1949/50 ..	1,628,473	339,788	282	31 75
1950/51 ..	1,535,200	346,465	301	43 16
1951/52 ..	1,514,157	380,304	332	47 56
1952/53 ..	1,472,553	319,992	290	48 60
1953/54 ..	1,611,223	397,594	325	49 40
1954/55 ..	1,738,821	299,831	227	58 81
1955/56 ..	1,585,500	363,449	305	52 11
1956/57 ..	1,568,539	372,185	313	53 34
1957/58 ..	1,617,013	350,693	288	54 90
1958/59 ..	2,014,020	400,682	263	44 20
1959/60 ..	1,564,744	360,269	300	44 81
1960/61 ..	1,516,155			

24. Picking and marketing were frequently hampered by rain, particularly in the Buganda Zones and in the Busoga and Toro Zones. Considerable difficulty was experienced with grade in all zones, but a satisfactory standard was maintained. The total crop amounted to 360,269 bales, which was 40,000 bales less than in the previous season. Table A on page 4 gives the comparative figures of production in the last 12 seasons.

25. Prices to the grower for clean raw cotton were 48 and 47 cents per pound for BP52 and S47 growths respectively. Stained raw cotton was priced at 18 cents per pound in all zones except West Nile where the price was 21 cents per pound. It is estimated that the total return to growers from the sale of their crop was £10,517,364. The crop (lint and seed) realised £18,398,000 on the Kampala auctions.

26. The number of ginneries operating was 130 of which 12, three in Buganda, six in the Eastern Province, one in the Western Province and two in the Northern Province were operated by African Growers' Co-operative Unions. All lint cotton was purchased from ginners by the Lint Marketing Board at prices based on the statutory fixed price to the grower; and the whole crop was sold on the Kampala auctions, together with all seed not required for planting.

(ii) *1960/61 Season*

27. Although good progress was made with the early opening of land and planting in April and May, lack of rain in the main planting months caused much of the crop to be sown late and also reduced the acreage below the potential. June and July were unusually dry in all the main producing areas and, whereas, there were good rains in late July in the Northern Province Zones and in the Bunyoro Zone, in other cotton growing areas the second rains did not break until the second half of the month. Planting proceeded rapidly in August and September and with the favourable rains all plantings grew well. Planting was completed in September and the total acreage for the season was 1,516,155 which was 48,000 acres below the total crop for 1959, which was itself an abnormal year. Compared with 1958, however, some 498,000 acres less cotton was planted in 1960. In October all sowings made excellent growth which continued into November. Dry weather, however, which began in the middle of the latter month adversely affected the later plantings. Marketing opened in November and, by the end of December, it was estimated that the equivalent of 63,000 bales had been purchased; and a total crop of 345,000 bales was forecast.

(iii) *Multiplication of New Strains of Cotton*

28. In both the BP52 and S47 areas, the seed multiplication scheme whereby successive annual waves of pedigree seed from the Empire Cotton Growing Corporation at Namulonge and Serere Experiment Stations are issued in each zone continued, and no part of either area planted its own seed. Seed of each variety was issued in the same zones as in 1959.

(iv) *Cotton Spraying*

29. Spraying against spiny boll-worm and lygus continued and approximately 5,000 acres were treated, compared with 8,000 acres (a revised figure) in 1959.

Dry weather from early June onwards resulted in much of the crop being planted too late to make spraying worthwhile. In addition, owing to the difficulty in collecting the large number of small loans involved, the scheme whereby farmers were granted loans to purchase spray pumps and insecticide was replaced by one of subsidised sales of the insecticide. The immediate effect of the change-over was that farmers had to repay the loans granted for the previous year's spraying, and also pay cash for their 1960 requirements, albeit at reduced rates. As money was very short owing to the small cotton crop, in the previous season, the net effect of these factors was to reduce the area sprayed. In Teso District, which is the leading area for cotton spraying in the Protectorate, there was the added complication of a severe rinderpest outbreak, which made it necessary to close cattle markets, thus further reducing the amount of ready cash in the hands of farmers.

(*b*) Coffee

(i) *Bugisu Arabica, 1959/60 Season*

30. The total production was 5,791 tons of parchment and 424 tons of "buni". The whole crop was processed by growers themselves using hand pulpers, apart from 16 tons produced by two central pulperies. The production of Selected Farmers' Parchment was suspended during the season owing to the low quality of the product. Production of the three types of parchment was:—

	Tons
Central Pulpery Parchment	16
Selected Farmers' Parchment	39
Bugisu Parchment—all grades ..	5,736
TOTAL ..	5,791

31. The average price paid to growers was Shs. 1/64 cts. per pound. The whole crop was milled in Mbale and auctioned in Nairobi, the average price realised being £316 per ton of clean coffee, compared with £326 per ton in the 1958/59 season. The fall in price reflects the trend in world prices but the low quality of the coffee also contributed to the reduced price.

(ii) *Bugisu Arabica, 1960/61 Season*

32. The prolonged mid-season dry weather lowered yields particularly at the lower altitudes. Sales of seedlings were on a much reduced scale, only 85 acres being planted during the year. The practice whereby pruning was carried out by trained gangs was discontinued, and individual growers became responsible for this work. By the end of the year a small number of growers had already pruned their trees satisfactorily.

33. During the season two central pulperies were in operation at Lwangoye and Buluganya. Although the classification of the coffee produced at these

pulperies was well above the district average, it was below the quality premium standard. Prices paid per pound to growers for the various grades were:—

	Shs.	*cts.*
Cherry (for preparation of central pulpery parchment)	0	25
Bugisu No. I parchment	1	25
Bugisu No. II parchment	0	75
Bugisu No. III parchment	0	50
"Buni"	0	50

By the end of the year the following tonnages had been collected by the Co-operative Union.

	Tons
Central Pulpery Parchment	24
Bugisu Parchment—all grades ..	4,058
TOTAL ..	4,082

34. A total crop of 5,500 tons of parchment is forecast. Details of crops produced in the last 12 seasons are shown in the following table:—

TABLE B.—BUGISU ARABICA COFFEE

Season	Production (parchment)	Estimated value to growers
	Tons	£
1948/49 ..	2,857	173,799
1949/50 ..	2,852	184,859
1950/51 ..	3,896	442,104
1951/52 ..	2,203	377,575
1952/53 ..	2,307	633,040
1953/54 ..	3,122	1,231,791
1954/55 ..	6,170	2,015,662
1955/56 ..	4,098	1,349,576*
1956/57 ..	5,175	1,420,353
1957/58 ..	4,805	1,198,602
1958/59 ..	4,912	764,072
1959/60 ..	5,791	1,013,722

* Includes value of 177 tons "buni".

(iii) *Bugisu Coffee Improvement Scheme*

35. The five field officers appointed under the above scheme undertook an intensive campaign to raise the general standard of cultivation of coffee in Bugisu, and to improve the quality of the parchment produced at central pulperies and by individual growers. Progress in raising cultural standards was slow, but there was an appreciable improvement in the general standard of weeding in many areas. The quality of parchment delivered to the Mbale mill early in the year was considerably higher than that achieved in the previous season but, unfortunately, this improvement was not maintained during the main picking season.

36. Spraying against *Antestia* and Lacebug was carried out on a greatly increased scale, a total of 11,400 acres being successfully treated. Particular attention was paid to increasing the efficiency of the gangs thus lowering the cost per acre. In addition, a special drive was undertaken to encourage complete picking of "buni" to reduce the heavy Berry Borer attack.

37. In August, the Bugisu Coffee Rules, 1960, which are intended to further the improvement scheme, were enacted. The rules make provision for the licensing of nurseries, correct planting, weeding, pruning, pest and disease control and improvement of processing.

38. In December, a five-year development plan, to be financed from funds made available by the Bugisu Coffee Board, was accepted in principle. The detailed plan which is to be considered by the Board early in 1961 will cover the following developments:—

(*a*) A replanting programme to replace unproductive coffee.

(*b*) Introduction of new varieties.

(*c*) Seedling production.

(*d*) Control of *Antestia* and Lacebug.

It is planned to integrate these developments with the Improvement Scheme.

(iv) *African-grown Coffee other than Bugisu Arabica*

39. The total production of African-grown coffee other than Bugisu Arabica during the calendar year was a record and amounted to 107,017 tons of clean coffee which was mainly Robusta, but included a small proportion (1,989 tons) of Arabica coffee grown in the Buganda, Western and Northern Provinces. The previous record which was achieved in 1959 was 93,261 tons of which approximately 2,500 tons was Arabica. The price to the grower for sun-dried Robusta cherry at curing works fell from 62 cents per pound to 50 cents with corresponding price changes for other grades. No change was made in Arabica prices.

40. Prices prevailing at the end of the year were:—

	Per lb.	
	Shs.	*cts.*
Robusta unhulled (kiboko)	0	50
Arabica unhulled (kiboko)	0	74
Robusta rough-hulled (containing not more than 2 per cent of husk and/or extraneous matter)	0	94
Arabic rough-hulled (containing not more than 2 per cent of husk and/or extraneous matter)	1	64
Robusta pulped and washed (parchment)	0	85
Arabica pulped and washed (parchment)	1	70

41. It is estimated that the value of the crop to the producer amounted to £12,458,398.

42. Processing was carried out by 12 curing works and seven licensed hulleries. Six of the curing works were African-owned enterprises and all worked in 1960.

Two new curing works, one in Ankole District and the other in Toro District were erected and both are due to start processing early in 1961. Six associations of growers were granted licences to operate estate coffee factories, bringing the total so licensed to 29. Exports of clean coffee by associations of growers during the year amounted to 31,491 tons.

43. The marketing of clean coffee (other than that produced by African estate coffee factories owned by associations of growers) remained the responsibility of the Coffee Marketing Board. Apart from occasional minor recoveries coffee prices at the Kampala auctions fell steadily. The price ranges per ton for standard Robusta and Arabica Grade 30 were £158 to £110, and £262 to £217, respectively.

44. In Buganda the drive for improved quality was maintained, special emphasis being placed on proper picking and improved methods of drying. There was little improvement in the standard of picking but there was a good response to propaganda for the use of drying tables and trays, and over 5,600 trays were sold. New plantings were on a negligible scale, the bulk of the 100,000 seedlings sold from official nurseries being used for filling the gaps in established coffee. The prolonged mid-season drought and the early onset of the dry season in November adversely affected the crop, particularly in Masaka, and at the close of the year prospects were not as good as in 1959.

45. In the Western Province spraying against *Antestia* on Arabica coffee was extended to Kigezi District and the total acreage dealt with was 4,400 acres of which 3,850 acres were in Ankole and Toro districts. Whilst it is difficult to assess precisely the benefits of spraying in terms of increased yield, farmers generally are impressed by the effects and as a result there has been a revival of interest in Arabica coffee in the three districts. The increase in the population of the pest after spraying is being carefully watched and the present indication is that the build up is slow.

46. Production figures by districts are given in Appendix IV (*b*) details of total production during the last 11 years are as under:—

Table C.—African Coffee Production

(Other than Bugisu Arabica and African estates)

	Cured Coffee (Tons)		
1950	26,263	1956	48,498
1951	34,362	1957	61,570
1952	29,563	1958	65,292
1953	26,998	1959	93,261
1954	25,196	1960	107,017
1955	60,160		

(v) *Estate Coffee Factories*

47. Production during the 1959/60 season amounted to 4,728 tons of clean Robusta coffee and 380 tons of clean Arabica. Prices realised averaged £137 10*s*. 0*d*. for Robusta and £235 for Arabica.

48. The following table shows the quantities and estimated values of coffee sold by estates (excluding associations of growers and co-operatives) during the last 11 seasons:—

TABLE D.—ESTATE COFFEE PRODUCTION (ROBUSTA)

Season	Production	Gross Value
	Tons	£
1949/50 ..	3,060	616,363
1950/51 ..	3,846	940,504
1951/52 ..	4,851	1,425,669
1952/53 ..	5,921	1,846,697
1953/54 ..	5,277	2,100,993
1954/55 ..	7,730	1,944,790
1955/56 ..	8,941	2,235,250
1956/57 ..	11,010	2,587,350
1957/58 ..	12,543	3,198,465
1958/59 ..	7,882	1,596,972
1959/60 ..	4,728	650,072

(vi) *Reorganisation of the Industry*

49. The fall in world coffee prices as a result of over production and the prospect of increasing difficulty in disposing of the Robusta crop in particular, made it necessary to review existing policy with a view to effecting a reorganisation of the industry to meet the changed circumstances. Government's proposals in the matter have been incorporated in Sessional Paper No. 8 of 1960, published in December, and have the following policy objectives:—

(*a*) to simplify the structure of the industry and, so far as possible, move away from the position where there is a "controlled" side and a "free" side of the processing industry, each necessarily being treated in different ways;

(*b*) to do everything possible to reduce production costs. It is considered there are now sufficient processing units in the industry to ensure a high degree of competition, and it is desirable to vary the existing "costs plus" price formula and to encourage competition in such a way as to reduce costs;

(*c*) in order to enable the Protectorate to compete in selling its coffee in world markets, to raise the standard and quality by more stringent measures in regard to grading, and encouragement of rough-hulling on farms and pulping;

(*d*) to enable the Coffee Marketing Board to control sufficient coffee so that it may, when necessary, meet any commitments which may devolve upon it under the International Coffee Agreement and, at the same time, maintain a measure of price stability in the industry.

(*c*) Tobacco

(i) *Flue-cured*

50. Production of this type of leaf is confined to West Nile, Acholi and Lango districts in the Northern Province and Kigezi District in the Western Province. The bulk of the crop was Harrison's Special, but a small acreage of the variety White Gold was also grown. It is intended that the latter variety will replace Harrison's Special in the coming season.

51. In West Nile District, transplanting started in mid-March and was completed by the end of June. The acreage planted was 1,424 compared with

1,818 in 1959. Weather conditions were generally favourable, and particularly good yields were obtained from the early crop. In some areas, the late plantings gave only light yields due to severe eelworm attack. Purchase of green leaf by the East African Tobacco Company amounted to 5,928,453 pounds from which 690,402 pounds of graded leaf were produced.

52. The two co-operatives curing their own leaf sold 17,308 pounds of cured leaf to the company. Individual farmers curing their own tobacco sold 7,692 pounds of leaf. The total production amounted to 715,402 pounds representing an average yield of 502 pounds of cured leaf per acre.

53. In Acholi District, planting followed the same pattern as in the West Nile, but weather conditions were generally more favourable, the mean yield of cured leaf being 681 pounds. The early planted fraction of the crop did extremely well but heavy rains at ripening lowered the quality of the later plantings. The total acreage planted was 662 of which 344 acres were grown by farmers doing their own curing. The East African Tobacco Company purchased 1,593,066 pounds of green leaf from which 209,210 pounds of saleable cured leaf were produced. Farmers doing their own curing sold a further 172,022 pounds to the company, bringing the total for the season to 381,232 pounds of cured leaf.

54. The Ngai Group Farm whose members are the only producers of flue-cured leaf in Lango District, planted 16 acres from which they cured 4,528 pounds of saleable leaf.

55. In Kigezi District, marketing of the 1959 autumn crop was completed in January and the total output was 70,000 pounds of cured leaf. The area of the 1960 spring crop was 263 acres. The early plantings grew well, but the main crop suffered from lack of rain from late May onwards. Harvesting was completed in July and the total production of cured leaf was 83,000 pounds. Both crops were purchased as green leaf by the Kigezi Development Company, the prices paid, as in other districts, being 12, 8 and 3 cents per pound. Planting of the autumn crop started in September and the total acreage established was 244. With the favourable late rains the crop grew well but, unfortunately, 40 acres were completely destroyed by hail in December.

56. Full details of production in all districts during 1960 compared with those of the previous year are given below:—

TABLE E.—FLUE-CURED TOBACCO PRODUCTION

AREA	ACREAGE		PRODUCTION (Green leaf)		PRODUCTION* (Cured leaf)	
	1959	1960	1959	1960	1959	1960
			'000 lb.	*'000 lb.*	*'000 lb.*	*'000 lb.*
West Nile	1,818	1,424	8,846	5,928	17	25
Acholi	955	662	3,432	1,593	107	172
Lango	22	16	—	—	—	5
Kigezi	520	507	1,116†	1,435‡	—	—
TOTAL ..	3,315	2,609	13,394	8,956	131	202

* Cured by individual farmers and co-operatives.

† 1958 autumn and 1959 spring crops.

‡ 1959 autumn and 1960 spring crops.

(ii) *Air-cured*

57. This crop is grown in West Nile District only. The description "air-cured" is not strictly correct as a limited amount of fire is used in the curing process. The variety grown was Heavy Western.

58. Transplanting from nurseries started in April and 1,162 acres were established compared with 737 in 1959. The early crop was planted under favourable conditions but dry spells in May delayed the work which was finally completed in early June. Harvesting started in July. A new system of grading was introduced whereby the leaf was purchased in four grades instead of two as hitherto. After some initial difficulty at markets where growers were reluctant to accept the new grades selling proceeded smoothly, but the standard of grading was disappointing. The prices paid for the four grades were:—

	Shs.	*cts.*
Grade I	1	50
Grade II	1	10
Grade III	0	80
Grade IV	0	60

59. The total crop amounted to 710,644 pounds of cured leaf compared with 439,549 pounds in 1959. Details of production in the last two years are given below:—

TABLE F.—AIR-CURED TOBACCO PRODUCTION

AREA	ACREAGE		PRODUCTION (Cured leaf)	
	1959	1960	1959	1960
			'000 lb.	*'000 lb.*
West Nile ..	737	1,162	440	711

(iii) *Fire-cured*

60. Transplanting started in late March in Bunyoro District and continued into June. The early portion of the crop was established under very favourable conditions but the mid-season dry spell caused the stands of the late plantings to be gappy. The early plantings gave good yields but the rest of the crop failed to recover from the dry spell in June and July, and much of the leaf was lacking in body.

61. The total production was 1,535,287 pounds which was purchased in the same grades and at the same prices as the West Nile crop. 74 per cent of the leaf was purchased as Grade III. There was a reduction in the moisture content of the leaf but grading left much to be desired, and it became apparent that a serious limiting factor in the production of high grade leaf was the lack of proper inspection and handling facilities at markets.

62. The average yield per acre was 445 pounds and the average price to the grower was 84 cents per pound.

63. Planting in Mubende District followed the same pattern as in Bunyoro but the dry spell was more prolonged and resulted in exceptionally poor yields.

PLATE I. Departmental Stand—Bugisu Show, 1960: Coffee Pests Demonstration
[*Photograph by Department of Information*]

PLATE II. Departmental Stand—Bugisu Show, 1960: Model Farm Layout
[*Photograph by Department of Information*]

PLATE III. Covered Kraal in Bugisu District
[*Photograph R. M. Baker*]

PLATE IV. Machinery Development—Modified Bentall Seeders mounted on the Polyculteur Attele, Planting Groundnuts at Serere Experiment Station
[*Photograph D. Innes*]

PLATE V. Training oxen for inter-row cultivation at Ngetta Farm Institute, Lango District
[*Photograph by M. F. Merchant*]

PLATE VI. Mubuku Pilot Irrigation Scheme showing inlet channel
[*Photograph by Department of Information*]

PLATE VII. Picking irrigated cotton at Nyakatonzi Experimental Farm, Toro District

[*Photograph by Department of Information*]

The crop was marketed in four grades as in other districts. The standard of grading was superior to that achieved in other areas growing dark leaf but still left much room for improvement. Total production amounted to only 63,003 pounds of cured leaf.

64. Details of production in the last two years in both districts are given below:—

TABLE G.—FIRE-CURED TOBACCO

AREA	ACREAGE		PRODUCTION (Cured Leaf)	
	1959	1960	1959	1960
			'000 lb.	*'000 lb.*
Bunyoro ..	6,424	3,438	3,827	1,535
Mubende ..	1,702	212	645	63
TOTAL ..	8,126	3,650	4,472	1,598

(iv) *Development of Overseas Markets*

65. Sales of leaf overseas from the 1959 crop were disappointing. The whole consignment of 2,782 pounds (2,400 pounds dry weight) exported from Mubende was sold at a loss equivalent to 12 cents per pound on the purchase price of Shs. 1/20cts. per pound wet weight. In the case of the West Nile leaf of which 13,062 pounds were exported as strips (8,006 pounds) only 653 pounds were sold at a loss of a little under 2 cents per pound on the purchase price of Shs. 1 20cts. The consignment of 203,046 pounds unselected leaf from the normal run of Grade I stocks held by the East African Tobacco Company which was exported outside the terms of the agreement between Government and Messrs. Edwards, Goodwin, was sold in the Sudan Republic at Shs. 1/70cts. per pound f.o.r. Kampala which was sufficient to cover all costs excluding brokers' fees. Messrs. Edwards, Goodwin have since expressed the view that it will be necessary to reduce the primary price by approximately 25 per cent if Uganda leaf is to be sold in quantity on overseas markets.

66. During 1960 the pilot scheme for the improvement of leaf quality was repeated in Mubende District and a leaf expert from the firm of Messrs. Edwards, Goodwin (Overseas) Limited was posted to the district from July onwards to advise growers and field staff on the presentation of leaf at markets, with special reference to the new system of grading, which was introduced in order to facilitate extraction of high quality leaf from the crop. Buying of the whole crop was undertaken by Messrs. Edwards, Goodwin as agents of the East African Tobacco Company on the understanding that up to 100,000 pounds of leaf could be exported if the improvement in quality made this possible. As in 1959 the moisture content of the leaf purchased was quite satisfactory averaging a little over 20 per cent. Progress in improving grading was, however, disappointing despite the fact that the overall quality was above that attained in other districts. At the end of the year no leaf from the 1960 crop had been sold overseas.

(v) *Chalmers' Report*

67. In order to obtain further advice on the export potential of Uganda dark leaf and the steps necessary to raise the quality to export standard, Mr. A. Chalmers, M.B.E., of the Agricultural Production and Marketing Board of Nyasaland, was invited to tour the tobacco growing areas of the Protectorate during October. In his report, Mr. Chalmers expressed the view that both Bunyoro and Mubende districts were capable of producing leaf of export quality and his main recommendations for achieving this were:—

(1) Uganda should only attempt to enter the export market on the basis of quality production.

(2) It is essential to provide adequate inspection and handling facilities for buyers at markets.

(3) The number of markets should be reduced.

(4) Registration of growers with a view to limiting production to trade requirements should be introduced.

(5) A tobacco extension officer fully conversant with all aspects of production, curing and marketing of all the types of leaf grown in the Protectorate should be appointed as soon as possible.

(6) The curing method for dark leaf should be changed and emphasis placed on the use of heat rather than smoke.

(7) Grass curing barns should be replaced by properly constructed mud and wattle buildings with proper ventilation.

(8) The present system of grading should be retained.

(9) Attention should be paid to the raising of the quality of leaf required for the internal market.

(10) Consideration should be given to the establishment of a Tobacco Marketing Board.

68. In regard to West Nile dark tobacco, Mr. Chalmers was less hopeful, being of the opinion that there was little prospect of selling this type of leaf overseas.

(*d*) Oil Seeds

69. The output of seed from the 1959/60 cotton crop was 139,968 tons of which 13,665 were BR. Local oil-millers and exporters purchased 118,621 tons at an average price of Shs. 466/75cts. for AR. and Shs. 423/53cts. for BR. Planting accounted for 21,147 tons and 200 tons were used as fuel.

70. The marketable surplus of groundnuts in the Eastern Province was estimated at 11,000 tons of shelled nuts compared with 9,000 tons in 1959. Exports amounted to 9,500 tons of shelled nuts. A buying season was gazetted in an attempt to prevent sales of unripe and damp nuts. The quality of the nuts purchased showed a marked improvement on that of the previous season when no marketing season was gazetted.

71. Sales of sunflower seed in West Nile District totalled 289 tons compared with an output of nearly 400 tons in 1959.

(*e*) Maize

72. Owing to continued low prices only a small acreage was planted in Buganda which was once a major producing area. Much of the crop was consumed in the green state and the marketable surplus was estimated at 12,000 tons. Price increases to 15 to 20 cents per pound in December will no doubt result in increased planting in 1961. In Busoga District which is the only important producer in the Eastern Province it was estimated that 10,000 tons were sold. In the absence of any statutory obligations on buyers to submit returns there is no means of knowing whether in fact the above quantities were marketed.

(*f*) Tea

73. At the end of 1959, the total area of planted tea was 15,828 acres, of which 10,700 acres were in bearing. During 1960 the net increase in licensed acreage was 1,863, bringing the total area licensed at the end of the year to 28,816 acres. Production amounted to 10,291,183 pounds of made tea compared with 9,753,473 pounds in 1959, and was the highest on record.

74. The average price realised for the tea which was exported was Shs. 3 36cts. per pound and the total export value of the crop was £1,452,600.

75. Arrangements were made in conjunction with Agricultural Enterprises Limited, the agricultural subsidiary of the Uganda Development Corporation, for Africans to participate in the tea industry as outgrowers. The scheme will start in 1961. In addition ten African farmers were granted licences on an individual basis for planting 220 acres of tea having entered into agreements with established tea factories for the processing of their leaf.

76. A new Tea Ordinance was finalised (and came into force early in 1961); the principal points of which are that growers are given increased representation on the Tea Board; the cess imposed on manufactured tea may be retained to finance agricultural research on the crop; the cess on acreage is removed; changes in the condition of issue of tea planting and manufacturing licences are made to ensure that planting takes place only on land which is suitable; and factories are only erected in suitable areas and equipped with machinery capable of producing tea of the highest possible quality.

(*g*) Sugar

77. A total of 18,630 acres of mature cane was harvested and production from the two estates amounted to 91,117 tons of mill white sugar compared with the previous record production of 81,075 tons in 1959. Exports to Kenya only were 30,900 tons compared with 13,710 tons to Kenya and Tanganyika in the previous year. There were no exports of sugar to Tanganyika during 1960.

(*h*) Cocoa

78. The policy of developing cocoa as a secondary cash crop only in the areas of the Protectorate most suited to its growth was endorsed by Mr. O. J. Voelcker, C.B.E., Adviser on Cocoa to the Colonial Development Corporation, who visited the Protectorate during November and December. Mr. Voelcker advised that in future only Upper Amazon varieties should be planted, and this

was accepted by Government. This change in planting policy will limit to some extent the area planted in the next two years, owing to lack of sufficient planting material. It is estimated that the total acreage planted by African farmers to date is 160 acres. Most plantings made good growth until the onset of the dry season from mid-November onwards which caused widespread defoliation. The main acreage has been planted in Buganda but trial plots have also been established in Busoga, Bukedi, Bunyoro and Toro districts.

(*i*) Sisal

79. Exports of sisal from one estate near Masindi in the Western Province were 632 tons compared with 506 tons in 1959.

(*j*) Minor Crops

80. There was an increase in the acreage under vanilla which grows well in the wetter parts of the Protectorate and exports amounted to 5,200 pounds valued at £12,960. A small outgrowers scheme was started by one estate under which African farmers will sell their crop as green pods thus participating in what is normally exclusively an estate crop.

81. The Department revived, with considerable success interest in cardamoms, pepper, ginger and turmeric with a view to meeting the needs of the local market which at present imports its spice requirements. Arrangements were made for the introduction of high yielding varieties of a number of spices and other minor crops and investigations were initiated into the best methods under local conditions for processing these crops.

V. AGRICULTURAL DEVELOPMENT AND EXTENSION WORK

(*a*) Soil Conservation

82. The field staff of the Department again devoted an important part of their time to encouraging farmers to take steps to protect their cultivated and grazing lands against erosion, and particular attention was paid to soil conservation measures in all farm layouts given to progressive farmers.

83. In Buganda, the results of the Annual Shield Competitions, in which a substantial proportion of the marks are awarded for soil conservation work, were variable, depending very much on the interest shown by chiefs in the areas concerned; nevertheless, in the leading counties very encouraging progress was made.

84. In the Western Province a satisfactory standard of protection of arable land was maintained particularly in the more densely populated and hilly areas of the Province. The indiscriminate burning of communal grazing grounds, which was more severe and widespread than usual, continued to cause concern, and little progress was made with applying the relevant agricultural bye-laws.

85. Soil conservation work in the Eastern Province was maintained at a high standard and notable progress was made on Mount Elgon in the building of *Paspalum* bunds.

86. The practice of leaving uncultivated grass strips along the contour when opening land is now almost universal practice in Acholi and Lango districts, and is becoming so in West Nile District. In Karamoja District there was an increase in stone bunding on Moroto Mountain but little progress was made in persuading the local people to take steps to halt the serious deterioration of the grass cover in the wet season grazing areas.

(*b*) Agricultural Education

(i) *Main Farm Institutes*

87. The two main Farm Institutes at Bukalasa and Arapai continued to provide a two-year course of basic agricultural training, followed by a third year of specialised training for students wishing to join the Department.

88. During the year it was decided that in future the minimum qualifications for entry would be raised from the Junior Secondary Leaving Certificate to Cambridge School Certificate and that in view of the higher educational standard of the intake the course should be reduced from three years to two years.

89. The most urgent need is for more Assistant Agricultural Officers who up to now have been trained at the University College of East Africa (Makerere). With the decision to discontinue this Diploma Course at Makerere it was decided to start a similar Diploma Course at Bukalasa in March 1961, to fill this need.

90. Students for the Diploma Course will be selected from those who have done outstandingly well in the basic two-year course at Bukalasa and Arapai and they will be required to spend a further two years in training. The first of these years will be spent at Serere Experiment Station, where the work will be essentially practical and the final year at Bukalasa. Those who complete the course satisfactorily will be awarded the Bukalasa Diploma which will qualify them for appointment as Assistant Agricultural Officers in the C5–3 Scale.

91. It is hoped to put this diploma on an East African basis as soon as agreement has been reached with the other East African territories and with the approval of the University College of East Africa.

92. During the year, 19 third year students passed their final examinations at Bukalasa and were awarded certificates. The number of second year men was 50, of whom 48 successfully completed their basic training. New entries totalled 53 of whom 21 were holders of the Cambridge Overseas School Certificate.

93. At Arapai only one of the 17 third year students was awarded his certificate owing to the low standard achieved in the final practical examination. Of the remaining 16, one man has accepted employment with a private firm and the others were given the option of returning to the Institute for a further six months training, or accepting employment in the Department on temporary terms. Of the second year men, 33 successfully completed their basic two years training whilst the number of new entries was 42.

(ii) *District Farm Institutes*

94. The District Farm Institutes at Ngetta in Lango District and Ikulwe in Busoga District opened their doors during the year and over 300 farmers received short courses of instruction. At Ikulwe the emphasis was on general agriculture while at Ngetta particular attention was paid to ox-cultivation. The general response to the training offered was most encouraging and it is intended to offer courses of up to one year in the future. The building of three other institutes at Mukono, Tororo and Fort Portal was completed and all will start courses of training in 1961. The sites of a further two institutes were selected in readiness for building to start in 1961.

(iii) *Farm Schools*

95. These institutions provide a two-year post-primary course in agriculture for boys academically unsuited to higher studies and who wish to take up farming on their own account. There are now eight farm schools in the Protectorate of which six are in the Northern Province and two in the Eastern Province.

96. Aler Farm School in Lango District suffered from being without a Principal until August, but is now in full operation. 36 boys were in training of whom 12 left at the end of the year to take up farming on their own account. Over 300 applications for admittance to the school in 1961 were received from which number it is planned to select 50.

97. At the Farm School run by the Verona Fathers' Mission near Gulu, 11 boys successfully completed their course, and left to establish their own holdings. Seven students successfully completed their first year training at the Farm School near Gulu run by the Native Anglican Church. The smaller farm schools at Koboko, Moyo and Kaabong operated satisfactorily during the year.

98. In the Eastern Province, 20 students passed out of the Muljibhai Madhvani Farm School in Busoga whilst the Amucu Farm School after the difficulties experienced in 1959 had a year of steady progress.

(iv) *Miscellaneous Courses*

99. Sixteen two-week courses were held at Bukalasa. These courses were mainly for chiefs and cultivators, but training was also given to Community Development Assistants (Women), members of the Y.W.C.A. and Prison Warders. All courses were well attended and a total of 274 persons received training.

100. Refresher courses for departmental staff together with specialised training in cotton spraying and plot measuring were held in the districts. In Busoga District a short course was given for schoolmasters on the care of school gardens.

101. Intensive use was made of county and sub-county shows for staging demonstrations and disseminating agricultural propaganda. Considerable use was again made of pamphlets and posters for propaganda purposes.

102. Prison farms continued to provide excellent demonstrations on improved farming methods whilst agricultural competitions in which marks were awarded for all aspects of progressive farming were held in most districts.

103. In the Eastern Province a "Good Farmers Competition" was held for individual farmers in which a high standard was achieved by the winners.

104. Regular broadcasts were made in the Luganda programme "Calling Farmers" and in the "Farmers' Magazine Programme" which goes on the air in Lwo, Runyoro and Ateso.

(*c*) Animal Husbandry and Pasture Work

105. Progress in securing the adoption of departmental policy which aims at the integration of stock into a balanced system of mixed farming was necessarily slow as it requires the abandonment of communal herding and substantial expenditure on fencing. Nevertheless, encouraging developments have taken place.

106. In south Bugisu over 1,000 covered kraals were built and the practice started to spread to other parts of the district. The farmyard manure made in the kraals was supplied to coffee plots and banana gardens, being transported to the fields in specially constructed hand-barrows. In Teso District several leading farmers built stall units and planted elephant grass to provide supplementary food for their cattle. In Ankole District in the Western Province 50 acres were ploughed and seeded with Rhodes Grass and Molasses Grass with a view to providing seed for pasture improvement work. In the Northern Province little progress was made except with night paddocking, whilst in Buganda further paddocking of small areas of land was carried out by stockowners.

(*d*) Irrigation and Swamp Reclamation

(i) *General*

107. Investigational work in co-operation with the Water Development Department was undertaken on four irrigation schemes. On the Mubuku River and at Nyakatonzi in Toro District, at Namalu in Karamoja District and in the Oruchinga Valley in Ankole District; and arrangements were made for starting a further two projects in Buganda and the Western Province.

(ii) *Oruchinga Valley*

108. In the Oruchinga Valley a five-acre experimental plot was planted with a comprehensive range of cash and food crops. Good yields were obtained from cotton, rice and vegetables but maize and groundnuts gave only poor returns, whilst Arabica coffee made slow growth. Experience during the year emphasised the need for further experimentation on the time of application of water and on drainage problems.

(iii) *Nyakatonzi*

109. At Nyakatonzi approximately 45 acres were under irrigation. Cotton again grew vigorously, but the final crop was disappointing. Yields of up to 860 pounds per acre were obtained from sprayed cotton. It is thought that the spacing of $3' \times 1'$ was too close, causing suppression of the bottom crop. Trials were started during the year to ascertain the optimum spacing of cotton under irrigation and when sprayed.

(iv) *Namalu*

110. In the Namalu area, at the south-western foot of Mount Debasien, a variety of crops was successfully grown under irrigation using water from the dam constructed in 1959 and 28 holdings of 15 acres each were demarcated in the area to be covered by the irrigation scheme, in readiness for settlement in 1961.

(v) *Mubuku River*

111. In August 1959, a small water supply scheme was brought into operation in the area north of Kasese by the Water Development Department. This originated from joint consideration by the Department of Agriculture and the Department of Water Development as to the possibilities for irrigating this area to supplement the rainfall, and thus allow the growing of better crops, and also to supply water to the Gombolola Headquarters at Rukoki.

112. This pilot development scheme consists of an intake on the Sebwe River, about 12,000 yards of unlined channel on the Kasese plain which is capable of carrying up to 1,000-gal.-minute, and various control gates.

113. During the year the Department laid out five 15-acre plots for irrigation, which will be settled and cropped in 1961. A number of crops will be under trial including cotton, groundnuts, sweet potatoes, grams and beans, but the most likely cash crops for settlers are considered to be cotton and groundnuts. A detailed soil survey is to be carried out early in 1961 over the whole of the Kasese plain, which totals some 12,000 acres.

114. The water for any large-scale irrigation scheme which might develop on this area would be drawn from the Sebwe and Mubuku rivers at the point where they debouch on to the plain at Mubuku. These rivers can be regarded as one, for their catchments are contiguous and their lower reaches, running close together, simplify the engineering of water inter-change from one river to the other. The Mubuku is the major river in the area with a catchment of some 100 square miles draining the higher peaks of the Ruwenzori massif. The Sebwe catchment area is about 30 square miles in extent and is a relatively minor source of water. Generally the scheme appears promising and there should be no problem of obtaining settlers for the area, as many farmers on the higher slopes of Ruwenzori normally descend seasonally, to plant their cotton on the plains around the foothills.

(iv) *Sugar Estates*

115. Both the privately-owned sugar estates have now installed overhead irrigation by the sprinkler method which is estimated to give an increase in yield of the order of 30 per cent. The Muljibhai Madhvani Factory already have 3,000 acres so irrigated and the Uganda Sugar Factory 750 acres. Great credit is due to both these estates for their initiative and enterprise.

(vii) *Swamp Reclamation*

116. Extensive swamp reclamation work was carried out in the heavily populated areas of Kigezi District, chiefly in the Kiruruma and Kashambya swamps. 3,700 acres were drained and allocated for cultivation.

117. In many parts of the Protectorate swamp fringes and valley bottoms were utilised for dry season planting of sweet potatoes and to a lesser extent of other crops such as maize and beans.

(*e*) Resettlement

118. During the year there were nine resettlement schemes in operation in the Western Province located as under:—

Kigezi District—Rwanga, Kihihi and Bwambarra.

Ankole District—Bigyera, Chezo, Kisharira and Nyansimbo.

Toro District—Bigodi and Nkongora.

Settlement continued in the north Kigezi areas with added impetus owing to the successful malaria eradication campaign conducted by the World Health Organisation. 270 families comprising 1,355 persons were allocated holdings during the year. Flue-cured tobacco remained the main cash crop of the settlers.

119. The Bigyera area in Ankole was fully settled early in the year and a new area was opened at Nyansimbo. In the Bigodi and Nkongora areas in Toro District, no new settlement took place but established settlers were self-supporting and grew a wide range of crops, including Robusta coffee which continued to grow well. During the year, however, only Arabica seedlings were issued to settlers in view of the probability of over-production of Robusta in the Protectorate.

120. The South Busoga Resettlement Area made some progress, 988 families taking up holdings compared with 531 in 1960. Agricultural development was relatively slow owing to the heavy clearing costs facing new settlers in this heavily-wooded area. Nevertheless, some of the early settlers made excellent progress in developing their holdings, growing cotton and Robusta coffee as cash crops. Each settler in the area is given a simple development plan which he is required to follow.

(*f*) Kigumba Settlement Scheme

121. A number of settlers left the area during the year to take up holdings in other parts of Bunyoro District. At the end of the year only 360 holdings were occupied compared with 390 in 1959. The production of pedigree cotton, however, expanded, 731 acres being planted compared with 517 in the previous season. Four water tanks were constructed for cattle introduction. A test herd was maintained on the settlement to keep a check on the tsetse position.

(*g*) Liaison with African Local Governments

122. Officers of the Department worked in close liaison with senior officials of African local governments and chiefs in general agricultural extension work, particularly the maintenance of food supplies, increased production and soil conservation. Successful agricultural competitions and agricultural shows which were arranged in most districts are evidence of the close co-operation achieved.

(*h*) Mechanical Cultivation

(i) *Policy*

123. It is the policy of the Department to use the Contract Hire Service to pioneer the development of mechanical cultivation and to move to new areas when farmers themselves and other organisations are capable of operating their own tractors and equipment.

(ii) *Contract Hire Service*

124. Tractor units continued to operate in Buganda and in Busoga, Bunyoro, Acholi, Lango, Toro and Madi Sub-district; new centres being opened in north Acholi and East Madi County of Madi Sub-district. The units operating in Masaka District and in the east of Acholi District were withdrawn at the end of the ploughing season owing to lack of demand for their services. The total area cultivated by all units was 5,739 acres compared with 6,420 acres in 1959. The main falls in area cultivated were in Bunyoro and Acholi districts. In Acholi the decrease was attributed to the increase in the number of privately owned tractors which were estimated to have cultivated approximately 2,500 acres in the district. In Bunyoro District, restriction of the acreage planted to tobacco is considered to have been the main cause of the reduced demand. Comparative figures of acreage cultivated at all centres in 1959 and 1960 are shown below:—

TABLE H.

Province or District	Ploughing		Discing		Planting		Weeding and Ridging	
	1959	1960	1959	1960	1959	1960	1959	1960
Buganda ..	604	600	85	225	8	66	308	—
Bunyoro ..	685	393	—	10	—	15	—	—
Toro	367	692½	348	537½	94	64	8	32
Acholi* ..	1,770	1,122	493	215	24	4	112	34
Lango	1,292	1,166½	98	102½	—	6	—	—
Busoga ..	218	272½	—	161½	—	8	—	12
TOTAL ..	4,936	4,246½	1,024	1,251½	126	163	428	78

* Includes East Madi County of Madi Sub-District.

125. The number of tractor units operating was 34, of which 10 were Farmall B.E.M., 6 Fordson Major (Diesel), 9 Massey-Ferguson 35 (Diesel), 1 Ferguson 20 (Petrol), and 8 Fordson Dexta (Diesel). The average number of hours worked per tractor increased from 435 in 1959 to 459 in 1960. The average time taken to plough an acre was 1·88 hours compared with 2·01 in the previous season, whilst running costs for all operations worked out at Shs. 23/73cts. per hour. The total revenue earned was Shs. 278,329—a decrease of Shs. 6,600 on the 1959 figure. Hire charges were Shs. 45 per acre for ploughing and Shs. 25 for discing in all areas. Weeding and planting rates were reduced to Shs. 15 per acre to encourage the use of these implements. For the first time a pool of specialised equipment including planters, disc ridgers and the Hawkins equipment, was provided for hire by farmers owning tractors.

(iii) *Purchase of Tractors by Farmers*

126. The number of tractors owned by individual farmers, farmers' groups and co-operatives increased by nine. The main increase took place in Acholi District where 13 tractors were operated regularly by African farmers. Regular advice and assistance with maintenance were given to tractor owners by officers of the Special Development Section.

(iv) *Investigational Farms*

127. Senge Farm was run as a mechanised farming unit to find out whether a single tractor can be operated economically on a 40-acre farm. During the year an investigation was begun into the stall feeding of 20 local bullocks on elephant grass using a forage harvester. The machine coped efficiently with the grass provided it was not allowed to grow to an excessive height.

128. Kigumba Farm in Bunyoro District was again run by the Special Development Section for the multiplication of pedigree cotton seed from the Cotton Research Station, Namulonge. Full advantage was taken of all available mechanised farming techniques, including spraying against spiny boll-worm and *Lygus*, to secure maximum seed multiplication. The average yield of seed cotton from the 160 acres planted in the 1959/60 season was 797 pounds. The 160 acres planted in the 1960/61 season are expected to produce over 900 pounds per acre of graded cotton. The herd of beef cattle kept on the farm was increased to 466 head and incorporated into the cattle breeding scheme operated by the Veterinary Department in the Western and Northern Provinces. A cattle weighbridge was installed and regular weighing started.

(v) *Machinery Testing and Development*

129. The Special Development Section became responsible for the testing and development of ox-drawn equipment in addition to its substantive responsibility in respect of tractor drawn implements, in all this work close liaison was maintained with the East African Tractor and Implement Testing Unit whose headquarters is at Nakuru in Kenya. Special attention was devoted to the production of both ox-drawn and hand seeders in order to encourage row planting of annual crops by the farmers themselves and so ease the burden of both weeding and singling. Three promising prototypes were still under trial at the end of the year.

130. The Section was also concerned in co-operation with other East African territories in the development of an ox-drawn tool bar which can also be used as a farm cart.

131. The extended farm trial of four tractors, Fordson Major (Diesel), Nuffield D.M.4, Ferguson F.E.35 (Diesel) and Ferguson F.E.35 (Petrol), which was started in 1957 and scheduled to last 2,000 hours, ended during the year, and all results and observations were forwarded to the National Institute of Agricultural Engineering for analysis and publication in due course.

132. Extensive trials were conducted on small two-wheeled tractors and power hoes suitable for use in the Robusta coffee areas. Three models were found to be reasonably suitable for local conditions and a special Field Day was organised at the headquarters of the Section at Namalere to demonstrate them to farmers.

133. In conjunction with the Coffee Research Unit, various modifications were carried out to the wet processing factory at Namalere. In addition three portable coffee hullers were modified and tested in co-operation with the local agents.

(vi) *Tractor Training School*

134. Two three-month courses were held at Namalere Tractor Training School. A total of 28 students comprising mainly progressive farmers and their sons attended the courses. Two courses of 15 days each were held for farmers and departmental staff on the operation and maintenance of two-wheeled tractors and power hoes.

(*i*) Ox-drawn Equipment

135. It is the policy of the Department to extend the use of ox-drawn equipment and, at the same time, to widen the range of implements used, particularly ox-weeders. Experience during the year has shown that one of the main limiting factors in this development is the lack of a suitable general purpose seeder.

136. In the Western Province demonstration teams were established in all districts but the interest shown by cattle owners, the majority of whom are traditionally pasturalists, was disappointing.

137. In the Eastern Province the Busoga Ox Training Centre at Kamuli Prison Farm sold 36 trained oxen and trained a further 24 animals on their owners' farms. Ten weeders were purchased during the year together with six ox-carts. In Teso District where the ox-plough is in general use, two instructors were posted to each county to train oxen for row planting and inter-row weeding. Sales of weeders which totalled 29 were not as high as expected, chiefly owing to the serious rinderpest outbreak during the year. Ten locally made ox-carts were purchased by farmers. Elsewhere in the Province progress was much slower although increased use was made of ox-ploughs in the Sebei Plains in Bugisu by Kitosh settlers. In the Northern Province most progress was made in Lango District where 25 weeders together with six harrows, three planters and four ox-carts were sold. The majority of these implements were purchased through the loans scheme operated by the Lango District Council through the African Loans Fund. Acholi farmers purchased six weeders and the same number of seeders during the year. In West Nile District where little use is made of the plough five demonstration teams carried out work on contract and also trained oxen for farmers during the dry season.

138. Little interest was shown in the use of oxen in Buganda despite repeated demonstrations, and the availability of training facilities at experiment farms.

139. In the course of the year, ways and means were examined of making more capital available to the progressive farmer particularly for the provision of ox equipment. It is planned to popularise the use of ox-drawn equipment not yet in common use including ox-carts, by means of a subsidy scheme which it is expected will start in 1961.

(*j*) Farm Planning and Progressive Farmers

140. During the year farm planning became an integral part of the normal District Extension Services, with the object of giving each and every progressive

farmer a planned layout so that he can farm his land to the best possible advantage, thus creating a class of yeoman farmer. The magnitude of the task can be gauged by the fact that in the Eastern Province alone the names of more than 3,000 progressive and emergent farmers have been recorded.

141. At the same time, work continued with the more detailed planning of the larger farms, of which there are now 30 in the Eastern Province, and 34 in Buganda. Six farms were also planned in Bunyoro District in the Western Province, and a start was made in the Northern Province where six farmers in Acholi and twelve in Lango District were given farm layouts.

142. In Kigezi District there was a revival of interest in enclosure resulting in 280 farms being fully enclosed in live hedges, and a further 403 farms were partially enclosed.

143. In Buganda where the economy is based mainly on perennial crops, planned farmers concentrated on improving the yields of coffee and bananas, better crop processing, integration of cattle into the farming system, and the extension of the acreage under cultivation on a rational basis.

144. In those areas where annual crops predominate, especially the Eastern Province, the main important practices incorporated into the farming systems were spraying against cotton pests, the introduction of row cropping and inter-row weeding, stall feeding of cattle and the use of farmyard manure.

145. Practically all planned farmers kept farm records which continued to provide much valuable information not hitherto available, on the economics of peasant farming, and in this connection, there was again evidence of farm development in accordance with a detailed plan out-stripping managerial skill.

146. We were fortunate in obtaining, through the International co-operation Administration, the services of Dr. Kearl, a Research Economist from the United States who made a detailed study of existing planned farmers, and who examined the economics of peasant farming in Uganda. He will complete his survey in March 1961, and his report is awaited with interest

VI. INVESTIGATIONS

(*a*) Plant Breeding

(i) *Beans*

147. An intensive programme on beans has been initiated to improve yield, quality and disease resistance. Variety trials have included semi-climbing and bush types. Twenty-nine promising lines of the variety "Mutike 4" and six lines of the variety "Banja" which appear to exhibit considerable resistance to anthracnose, are under close investigation.

(ii) *Groundnuts*

148. An agronomist has been posted to full-time work on this crop to expand and intensify a programme designed to provide a product suitable for the edible market. Extensive local collections have been made, and it has become apparent that the local cultivator maintains two distinct types, an upright for selling to the existing oil-crushing trade and a spreading type for domestic consumption. For the present programme, interest centres on the types preferred for local consumption.

(*b*) Entomology

(i) *Coffee*

149. There was no severe outbreak of *Habrochila ghesquierei* Schout, on Mount Elgon arabica this season, and this restricted large-scale experimentation. Small-scale experiments and field observation showed that better control of this pest can be obtained with two malathion sprays at an interval of five weeks instead of three weeks.

150. Large-scale team spraying with "Motoblo" airblast sprayers continued against *Antestiopsis* spp. and 4,400 acres were sprayed in Western Province and 11,400 acres on Mount Elgon. "Ross" knapsack sprayers also sprayed 1,480 acres in the more inaccessible parts of Ruwenzori. A sequential sampling system has been started and the *Antestia* population is now assessed by eye instead of the old method of tenting the trees and flitting with pyrethrum, which is much quicker and cheaper as well as more reliable statistically.

(ii) *Cotton*

151. Trials conducted at Serere once again confirmed the benefit of spraying early planted cotton. Another trial showed that four applications of D.D.T. at one lb./acre at 15-day intervals may be superior to the standard ten-day interval. A D.D.T. formulation trial showed the superiority of sprays to dusts and that D.D.T. miscible liquid gave bigger yield responses than did B.H.C./cereclax or Sevin.

152. At Kawanda a spray X spacing trial showed, in a severe dry year, that $4' \times 1'$ was the best spacing sprayed or unsprayed. Early in the season before drought set in there was strong entomological evidence in favour of the closer spacing giving the bigger yields. The Planting date trial covering 1st April to late September put the best time for planting at early June.

153. District trials gave many good yield responses from farmers' plot in West Nile District and encouraging results from small trials in the Western Province.

(*c*) Plant Pathology

(i) *Coffee*

154. Progress has been made with investigations into the "new" disease of Robusta coffee. Spread during the year 1960 was more marked than in previous years, differentially timed copper sprays showing that the main spread occurs in April, in the early rains. The pathogen has been isolated, but all attempts at identification, both at Kawanda and at C.M.I., have so far been unsuccessful.

155. Studies of rust of Arabica coffee have continued. The rust culture techniques for race differentiation in *H. vastatrix* have been confirmed; trials of copper fungicides for control have begun. In variety trials in Bugisu District, the varieties SL.14 and SL.28 have performed well; although susceptible to rust, they perform well under rust attack.

(*d*) Pastures and Animal Husbandry

156. Observational trials on the fertilizing of elephant grass pastures at Kawanda indicated that (i) there was a large response to ammonium sulphate, (ii) the residual effect of an ammonium sulphate application on the next crop of grass was small, (iii) triple superphosphate had a good effect, (iv) 1 cwt. muriate of potash and 2 cwt. calmag per acre were ineffective, (v) 2 cwt. sulphate of ammonia per acre to alternate crops of grass +2 cwt. triple superphosphate per acre at the beginning of the year seems a promising treatment.

(*e*) Soil and Land Use Surveys

157. The following research memoirs have been completed :—

An Introduction to the Soils of the Uganda Protectorate, by E. M. Chenery.

The Soils and Land Use of Buganda, by S. A. Radwanski.

The Soils of the Western Province of Uganda, by J. F. Harrop.

The Soils of the Eastern Province of Uganda, by C. D. Ollier and J. F. Harrop.

The Soils of the Northern Province, Uganda (*excluding Karamoja District*), by C. D. Ollier.

The Soils of Karamoja District, Northern Province of Uganda, by J. G. Wilson.

The Vegetation of Uganda (*excluding Karamoja*), by I. Langdale-Brown.

The Vegetation of Buganda, by I. Langdale-Brown.

The Vegetation of the Western Province of Uganda, by I. Langdale-Brown.

The Vegetation of the Eastern Province of Uganda, by I. Langdale-Brown.

The Vegetation of the West Nile, Acholi and Lango Districts of the Northern Province of Uganda, by I. Langdale-Brown.

One memoir remains to be finished to complete this series, namely:—

The Vegetation of Karamoja District, by J. G. Wilson.

158. Of the survey team only one Soil Survey Officer now remains in Uganda. He has just completed a survey of an area selected for irrigation north of Lake George.

(*f*) Agronomy

159. An experiment to determine the effects of various elephant grass and natural regeneration treatments in restoring fertility to a very acid overcropped site on Buganda loam entered its first test year. Undisturbed soil cores were examined by the Physicists of E.A.A.F.R.O. and no treatment appeared to have a striking effect on properties connected with soil structure. On the other hand there were striking differences in the growth and yields of the first cotton crop. Leaf analyses and soil moisture measurements are also being carried out and the experiment is continuing. The 14 permanent factorial fertilizer experiments on annual crops were continued.

160. Studies on the upward movement of nitrate ions in the soil using chloride ions as markers, have shown that a small upward movement does occur but this seems not to be the main cause of nitrate accumulation in the surface soil. Experiments to measure the effects of heavy phosphate fertilizing (175 lb. P205 per

acre) at Kawanda have shown in their first year a remarkably small effect on yields and leaf composition of maize. Attempts to correlate cotton yields at Kawanda with soil analyses indicated that on these acid clay loams a high pH (up to pH=7) and a high K/Ca ratio make for higher yields. Cotton sometimes responds economically to 1–2 cwt. sulphate of ammonia per acre and the best time to apply this fertilizer is probably about a month after planting.

161. Experiments on Arabica and Robusta coffee continue at a total of five stations and about 70 small fertilizer trials on farmers' plots have been started. No new findings can be reported yet. More pot experiments with Robusta seedlings have been started. A statistical analysis of individually recorded Robusta trees has shown that the square roots of the yields were more normally distributed than simple yields; this transformation would therefore seem advisable in all future analyses.

162. The long-term Fertility Experiment at Serere has been exhaustively analysed. Farmyard manure has been the most effective treatment and its residual effects seem extremely long lasting; the treatments are now being modified. In Bukedi District 111 pounds single superphosphate per acre increased groundnut yields by an average of 18 per cent (260 pounds unshelled nuts per acre) in 63 trials on African farms. Similar trials on 115 African cotton farms in Eastern Province gave an average increase of 28 per cent (250 pounds seed cotton per acre) as a result of a dressing of 200 lb./acre of a 10:10:5 mixture at planting followed by an extra 95 pounds ammonium sulphate at flowering. A 6:10:3 fertilizer mixture gave very promising yield increases of tobacco in one experiment in the Northern Province.

(*g*) Pesticides Research

163. A number of herbicides were tested for control of *Oxalis semiloba* Sond. at Kawanda. PCP, Simazin, 245–T, trichlorobenzoic acid, MCPA, " Eptam " and maleic hydrazide were ineffective. Ammonium sulphamate at high rates, Monuron and " Fenac " seemed partially effective. But the most promising herbicide was aminotriazole at rates of $2\frac{1}{2}$ lb. per acre or more, although its effectiveness may depend upon its formulation.

164. 15 lb./acre Dalapon applied in six different ways failed to get rid of a heavy infestation of *Digitaria scalarum* (couch grass). The best treatment was to slash at six inches height, remove trash and spray one application in 100 gals. of water, with no ploughing.

VII. STAFF

165. Great difficulty was experienced in recruiting both Field and Specialist Officers and at the end of the year there were nine unfilled posts of Field Officer (Agriculture) whilst in the Research Division four senior posts remained vacant. A second Agricultural Officer (Woman) was appointed but only in sufficient time to take over from her predecessor who resigned to get married. One Assistant Agricultural Officer took his degree in Agriculture in the U.K., and was appointed Agricultural Officer. 20 Agricultural Assistants trained at Bukalasa and Arapai were appointed but the shortage of this category of officer remained acute.

166. During 1960 the Department suffered an unusually severe loss by the retirement of its four most senior officers—Mr. J. G. M. King, C.M.G., O.B.E., Director, Mr. J. T. Moon, O.B.E., Deputy Director, Mr. D. R. N. Brown, Deputy Director (Crop Industries) and Dr. E. M. Chenery, Chief Research Officer. All these officers will be greatly missed. Mr. Brown's services have not, however, been lost to Uganda as he has since been appointed Chairman of the Lint and Coffee Marketing Boards.

167. Mr. E. Williams, O.B.E., Director of Agriculture, Nyasaland, filled the vacant post of Director and Mr. T. S. Jones, O.B.E., Deputy Director, Sierra Leone, the vacant post of Deputy Director (Crop Industries).

168. Promotions included Mr. G. W. Anderson to Deputy Director, Mr. D. J. Parsons, M.C., to Assistant Director (Field), Mr. J. Bowden and Mr. W. R. Mills to Senior Research Officers and Mr. R. G. Hampson, D.F.C., to Senior Agricultural Officer.

VIII. ACKNOWLEDGMENTS

169. It gives me great pleasure to acknowledge the help and co-operation which this Department has received from both official and unofficial bodies, and from other departments of Government.

170. I am particularly grateful for the help and encouragement which I have received from the Minister of Natural Resources and his staff who have worked so hard on our behalf.

E. WILLIAMS,
Director of Agriculture.

ENTEBBE,
10TH MAY, 1961.

UGANDA RAINFALL, 1960

Station		Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	TOTAL
ABI	Total: ins.	0·96	1·94	3·45	6·20	4·37	6·17	3·77	9·19	7·56	9·41	4·84	2·45	60·31
West Nile	Days	3	6	9	9	11	10	12	12	12	14	14	5	117
3° 05′ N.; 30° 55′ E.	Mean: ins.	0·76	1·31	3·96	5·67	5·93	5·13	5·64	8·95	7·77	7·85	4·44	1·63	59·09
GULU	Total: ins.	1·80	4·79	5·34	7·91	6·81	2·60	6·57	13·42	8·39	6·07	2·98	2·88	69·74
Acholi	Days	10	9	14	17	17	10	16	18	23	22	16	7	179
2° 45′ N.; 32° 20′ E.	Mean: ins.	0·49	1·75	3·46	6·90	7·85	5·64	6·53	8·99	6·90	6·41	3·69	1·80	60·41
LIRA (Ngetta)	Total: ins.	3·39	2·24	3·57	7·39	10·54	2·89	4·18	10·56	5·16	3·27	5·81	0·84	59·84
Lango	Days	9	9	8	16	19	8	10	14	17	12	11	3	136
2° 17′ N.; 32° 56′ E.	Mean: ins.	1·16	1·40	3·45	6·79	7·48	5·00	5·09	8·74	6·43	5·54	3·07	1·60	55·75
MOROTO	Total: ins.	0·00	1·16	9·00	2·53	9·12	2·26	2·89	1·67	0·72	1·42	0·81	0·61	32·19
Karamoja	Days	0	5	12	7	13	1	6	9	5	2	3	2	65
2° 33′ N.; 34° 36′ E.	Mean: ins.	0·34	1·23	2·94	4·79	5·91	3·45	5·26	4·17	1·97	1·88	1·71	0·94	34·59
SERERE	Total: ins.	0·81	2·56	5·68	5·73	10·64	2·17	3·12	11·68	7·17	4·48	3·93	1·10	59·07
Teso	Days	5	9	15	19	18	12	13	15	18	14	10	6	154
1° 31′ N.; 23° 27′ E.	Mean: ins.	0·87	2·17	3·72	8·21	7·59	4·09	4·53	6·49	5·55	4·43	3·59	2·08	53·32
MBALE	Total: ins.	2·48	2·42	4·89	6·96	5·70	3·87	1·95	5·12	3·25	1·32	2·05	0·98	40·99
Mbale	Days	10	9	17	22	19	14	13	18	16	17	10	8	173
1° 06′ N.; 34° 11′ E.	Mean: ins.	1·05	1·97	3·70	6·37	6·57	4·85	4·53	5·32	4·19	3·22	2·32	1·62	45·71
TORORO	Total: ins.	4·87	3·83	8·01	12·14	8·73	3·22	1·98	2·97	4·27	6·95	4·36	3·13	64·46
Bukedi	Days	12	15	20	23	19	13	16	13	18	21	18	10	198
0° 42′ N.; 34° 10′ E.	Mean: ins.	2·08	2·70	5·45	8·72	8·48	4·06	3·90	4·48	2·02	4·67	3·79	2·89	55·24
JINJA	Total: ins.	4·23	1·69	8·58	8·22	2·29	0·08	4·24	1·63	7·12	5·86	3·07	1·45	48·46
Busoga	Days	11	10	21	20	20	2	13	9	14	17	12	6	155
0° 28′ N.; 33° 11′ E.	Mean: ins.	3·67	2·28	5·29	7·80	4·44	1·95	2·40	3·44	3·40	4·62	4·02	3·12	45·43
KABALE	Total: ins.	3·79	3·16	3·25	5·47	0·89	0·11	0·10	2·39	3·22	3·34	2·82	2·90	31·44
Kigezi	Days	13	10	19	21	10	1	3	6	18	15	16	11	143
1° 15′ S.; 29° 59′ E.	Mean: ins.	2·39	3·57	4·56	5·41	3·68	1·03	0·81	2·12	3·70	3·81	4·11	3·54	38·73
MBARARA	Total: ins.	3·91	4·93	2·73	4·02	0·66	0·00	0·19	2·64	4·46	4·74	3·18	1·89	33·35
Ankole	Days	12	15	18	16	8	0	4	9	19	25	18	13	157
0° 37′ S.; 30° 39′ E.	Mean: ins.	1·65	2·44	3·81	4·77	3·17	0·94	0·85	2·45	3·85	4·15	4·40	2·93	35·45
FORT PORTAL	Total: ins.	1·87	5·88	3·28	5·41	4·88	1·60	1·77	3·96	5·56	10·81	9·00	1·04	55·06
Toro	Days	10	17	15	17	16	6	5	15	18	28	23	6	176
0° 40′ N.; 30° 17′ E.	Mean: ins.	1·34	2·86	5·29	7·32	5·61	3·22	2·32	4·57	7·36	8·44	6·43	3·01	57·77
BULINDI	Total: ins.	2·90	4·43	5·01	4·28	3·65	1·37	1·36	12·79	6·61	5·28	3·37	1·44	52·49
Bunyoro	Days	10	11	10	9	13	7	5	18	14	10	5	3	115
1° 28′ N.; 31° 28′ E.	Mean: ins.	1·39	2·38	4·11	6·90	5·24	3·41	3·49	6·12	6·56	4·88	3·79	2·17	50·44

MASAKA	Total: ins.	3·57	3·97	6·86	10·61	7·97	0·80	1·32	0·06	4·75	2·75	3·10	3·35	49·11
Masaka	Days	11	11	15	8	8	3	3	3	14	14	11	6	104
0° 20′ S.; 31° 44′ E.	Mean: ins.	2·05	2·38	4·48	7·04	6·66	1·80	1·38	2·09	3·41	3·88	3·70	3·51	42·38
KAKUMIRO	Total: ins.	1·14	1·32	3·50	2·19	4·81	0·04	0·40	5·99	6·48	6·29	6·31	0·79	39·26
Mubende	Days	8	10	13	8	12	1	3	13	18	16	13	3	118
0° 46′ N.; 31° 19′ E.	Mean: ins.	1·36	2·25	4·30	6·44	4·21	2·66	2·77	5·30	6·67	7·15	5·38	2·70	51·19
SENDA	Total: ins.	1·46	3·45	4·96	9·91	5·05	0·17	1·47	5·74	4·75	6·08	4·05	1·25	48·34
Mengo	Days	9	13	17	17	15	4	5	11	15	20	11	8	145
0° 29′ N.; 32° 01′ E.	Mean: ins.	1·95	2·57	4·52	6·64	4·64	2·17	1·81	4·19	4·34	5·59	4·45	3·05	45·92
KAMPALA	Total: ins.	5·11	2·03	6·91	9·30	6·90	1·86	1·93	2·37	4·48	4·01	2·06	1·24	48·20
Mengo	Days	10	8	19	17	17	7	6	5	11	13	7	3	123
0° 19′ N.; 32° 33′ E.	Mean: ins.	2·38	2·16	3·92	6·52	5·71	2·44	2·29	4·25	3·87	3·86	4·65	3·28	45·33
ENTEBBE	Total: ins.	4·77	7·84	12·16	16·75	3·39	3·08	1·92	1·85	1·74	3·06	2·43	2·82	61·81
Mengo	Days	12	14	25	21	14	8	14	5	9	19	12	8	161
0° 03′ N.; 32° 27′ E.	Mean: ins.	4·12	3·45	6·35	11·33	10·26	4·07	2·57	3·35	3·34	3·44	5·26	4·85	62·39

COTTON PRODUCTION, 1959/60 SEASON

Appendix II (a)

Province and Zone	Acreages*		Sales in Tons (Seed Cotton)		Yield per Acre (Seed Cotton)		Production (Bales of Lint)	
	Totals 1959/60	Mean 1954/55–1958/59	Totals 1959/60	Mean 1954/55–1958/59	Totals 1959/60	Mean 1954/55–1958/59	Totals 1959/60	Mean 1954/55–1958/59
					lb.	*lb.*		
Buganda—								
Mengo	226,000	280,000	41,115	46,928	408	377	70,034	78,959
Masaka	31,000	34,000	2,373	4,068	171	265	3,971	6,811
Mubende	68,000	63,000	9,648	10,402	316	371	16,412	17,619
Totals	325,000	377,000	53,136	61,398	366	365	90,417	103,389
Western—								
Bunyoro	57,000	37,000	4,793	5,160	188	310	7,980	8,692
Toro	35,000	32,000	4,509	4,040	290	275	7,894	7,011
Totals	92,000	70,000	9,302	9,200	227	292	15,874	15,703
Eastern—								
Busoga	381,000	370,000	63,606	52,466	374	320	110,787	89,096
Mbale	309,000	350,000	34,226	31,018	248	199	57,803	52,066
South Teso	61,000	60,000	5,000	5,664	183	210	9,798	9,649
South Teso Segregated	26,000	41,000	3,903	4,624	340	253	6,469	7,724
North Teso	37,000	65,000	2,918	5,333	177	183	4,905	8,999
Usuku	15,000	18,000	1,822	1,801	272	225	3,103	3,072
Totals	828,000†	904,000	111,475‡	100,908	310	251	192,865	170,606
Northern—								
Lango	178,000	184,000	15,281	18,183	192	220	25,801	31,255
East Acholi	43,000	60,000	5,945	6,493	308	245	10,134	11,208
West Acholi	57,000	47,000	5,596	6,881	218	334	9,138	11,720
West Nile	41,000	64,000	8,854	8,084	486	282	16,040	13,495
Totals	319,000†	355,000	35,676‡	39,641	250	250	61,113	67,678
PROTECTORATE TOTALS	1,565,000	1,705,000	209,589	211,147	300	270	360,269	357,376

* Corrected to '000 acres.

† These figures do not agree with provincial totals as shown in Tables III (*a*) III (*c*) and III (*e*) due to the fact that the boundaries of zones listed under Eastern and Northern Provinces do not coincide with provincial boundaries. The differences are compensating and the Protectorate totals in Tables II (*a*) and III (*a*) agree.

‡ Similarly these figures do not agree with those in Table IV (*a*), the Protectorate totals, however, agree.

COTTON PRODUCTION, 1960/61 SEASON
(Monthly Plantings—Acres)

Province and Zone	April	May	June	July	Aug.	Sept.	Zonal Total
BUGANDA—							
Mengo	—	2,230	44,240	58,940	55,724	14,382	175,516
Masaka	—	1,905	4,824	4,181	3,075	4,760	18,745
Mubende	—	1,572	7,200	23,017	22,601	1,522	55,912
TOTAL ..	—	5,707	56,264	86,138	81,400	20,664	250,173
WESTERN							
Bunyoro	—	807	8,815	21,258	21,939	—	52,819
Toro	—	—	—	1,022	10,984	20,950	32,956
TOTAL ..	—	807	8,815	22,280	32,923	20,950	85,775
EASTERN							
Busoga	3,000	71,092	108,861	135,803	61,571	11,802	392,129
Mbale	4,812	30,710	70,987	75,138	58,085	12,155	251,887
South Teso ..	12,081	36,419	9,018	4,138	2,348	—	64,004
South Teso Segregated	1,991	14,013	7,159	3,194	1,332	—	27,689
North Teso ..	1,603	22,916	16,061	9,212	1,536	—	51,328
Usuku	1,784	7,549	2,148	864	51	—	12,396
TOTAL ..	25,271	182,699	214,234	228,349	124,923	23,957	799,433*
NORTHERN							
Lango	1,646	29,394	64,478	57,243	22,286	1,270	176,317
East Acholi	2,488	14,664	24,328	18,344	7,963	136	67,923
West Acholi ..	242	5,062	20,907	25,529	8,406	918	61,064
West Nile	—	1,859	12,542	32,794	24,033	4,242	75,470
TOTAL ..	4,376	50,979	122,255	133,910	62,688	6,566	380,774*
PROTECTORATE TOTALS	29,647	240,192	401,568	470,677	301,934	72,137	1,516,155

* These figures do not agree with those in Tables III (*c*) and III (*e*) due to the fact that the boundaries of the zones listed under Eastern and Northern Provinces do not coincide with the provincial boundaries. The differences are compensating; the Protectorate totals agree.

COTTON—MONTHLY PLANTINGS AS PERCENTAGES OF TOTAL

Province and Zone	April		May		June		July		August		September	
	1960/61	Mean 1955/56–1959/60	1960/61	Mean 1955/56–1959/60	1960/61	Mean 1955/56–1959/60	1960/61	Mean 1955/56–1959/60	1960/61	Mean 1955/56–1959/60	1960/61	Mean 1955/56–1959/60
Buganda—												
Mengo	—	—	1·3	1·1	25·2	23·7	33·6	43·4	31·7	29·9	8·2	1·9
Masaka	—	—	10·2	10·0	25·7	25·4	22·3	20·9	16·4	31·0	25·4	12·8
Mubende	—	—	2·8	2·6	12·9	16·8	41·2	36·7	40·4	39·7	2·7	4·4
Total ..	—	—	2·3	2·2	22·5	22·6	34·4	40·2	32·5	31·8	8·3	3·4
Western—												
Bunyoro	—	—	1·5	4·1	16·7	19·7	40·2	46·7	41·6	29·5	—	0·1
Toro	—	—	—	—	—	0·2	3·1	8·6	33·3	69·9	63·6	21·3
Total ..	—	—	0·9	2·4	10·3	11·3	26·0	30·2	38·4	47·0	24·4	9·0
Eastern—												
Busoga	0·8	0·5	18·1	21·6	27·8	29·9	34·6	32·9	15·7	15·1	3·0	—
Mbale	1·9	1·7	12·2	15·1	28·2	29·4	29·8	35·2	23·1	18·5	4·8	0·1
South Teso	18·8	6·2	56·9	36·8	14·1	27·1	6·5	21·2	3·7	8·7	—	—
South Teso Segregated	7·2	3·9	50·6	30·5	25·9	29·2	11·5	24·5	4·8	11·9	—	—
North Teso	3·1	3·4	44·6	31·8	31·4	30·8	17·9	26·0	3·0	8·0	—	—
Usuku	14·4	6·3	60·9	59·1	17·3	27·9	7·0	6·5	0·4	0·2	—	—
Total ..	3·2	1·7	22·8	21·9	26·8	29·5	28·6	31·7	15·6	15·2	3·0	—
Northern—												
Lango	0·9	0·8	16·7	10·3	36·6	35·5	32·5	36·7	12·6	16·5	0·7	0·1
East Acholi	3·6	0·1	21·6	12·3	35·9	34·3	27·0	36·6	11·7	16·7	0·2	—
West Acholi	0·4	—	8·3	5·4	34·2	37·0	41·8	41·3	13·8	15·5	1·5	0·8
West Nile	—	—	2·5	1·9	16·6	25·0	43·5	44·0	31·8	28·6	5·6	0·5
Total ..	1·1	0·5	13·4	8·5	32·1	34·1	35·2	38·4	10·5	18·4	1·7	0·1
PROTECTORATE TOTALS ..	2·0	1·0	15·8	14·1	26·5	28·1	31·0	34·8	19·9	20·8	4·8	1·2

COTTON PRODUCTION

(Number of Bales of 400 lb., 1907–1960)

(Note:—All figures are corrected to 1,000 bales).

Season	Bales (Actual)	Bales (5-year average)	Season	Bales (Actual)	Bales (5-year average)
1907	2,000	—	1933/34 ..	286,000	271,000
1908	4,000	—	1934/35 ..	253,000	296,000
1909	5,000	9,000	1935/36 ..	316,000	321,000
1910	12,000	13,000	1936/37 ..	332,000	325,000
1911	20,000	21,000	1937/38 ..	418,000	335,000
1912/13 ..	26,000	25,000	1938/39 ..	307,000	344,000
1913/14 ..	40,000	27,000	1939/40 ..	300,000	326,000
1914/15 ..	26,000	28,000	1940/41 ..	365,000	264,000
1915/16 ..	22,000	29,000	1941/42 ..	238,000	241,000
1916/17 ..	28,000	26,000	1942/43 ..	112,000	236,000
1917/18 ..	27,000	30,000	1943/44 ..	191,000	208,000
1918/19 ..	36,000	44,000	1944/45 ..	272,000	207,000
1919/20 ..	47,000	48,000	1945/46 ..	227,000	218,000
1920/21 ..	81,000	60,000	1946/47 ..	231,000	258,000
1921/22 ..	48,000	78,000	1947/48 ..	170,000	272,000
1922/23 ..	88,000	108,000	1948/49 ..	391,000	295,000
1923/24 ..	128,000	128,000	1949/50 ..	339,000	325,000
1924/25 ..	196,000	145,000	1950/51 ..	346,000	355,000
1925/26 ..	180,000	155,000	1951/52 ..	380,000	357,000
1926/27 ..	131,000	170,000	1952/53 ..	320,000	349,000
1927/28 ..	138,000	156,000	1953/54 ..	398,000	352,000
1928/29 ..	204,000	157,000	1954/55 ..	300,000	351,000
1929/30 ..	125,000	173,000	1955/56 ..	364,000	357,000
1930/31 ..	189,000	204,000	1956/57 ..	372,000	358,000
1931/32 ..	207,000	220,000	1957/58 ..	351,000	370,000
1932/33 ..	295,000	246,000	1958/59 ..	401,000	—
			1959/60 ..	360,000	—

CROP PRODUCTION

Estimated Acreages under Crops, 1959 and 1960—African Cultivation

(*Thousand Acres*)

Crop	Buganda		Eastern		Northern		Western		Total	
	1959	1960	1959	1960	1959	1960	1959	1960	1959	1960
Beans (Mixed and Cow Peas)	151·0	144·7	179·8	175·0	120·3	129·8	125·7	128·2	576·5	577·5
Beans (Soya)	4·5	4·8	—	—	—	—	·5	·3	5·0	5·1
Cassava	68·5	94·2	287·6	208·4	201·7	209·5	118·3	93·7	676·1	605·8
Cocoa	·1	·1	—	*	—	—	—	—	·1	·1
Coffee (Arabica)	1·6	1·6	24·0	24·1	·6	·9	8·5	8·8	34·6	35·4
Coffee (Robusta)	440·7	475·8	7·6	7·8	·2	·2	14·1	14·7	462·6	498·5
Cotton	325·2	250·2	856·8	825·2	291·0	355·1	91·7	85·8	1,564·7	1,516·2
Grams	7·3	·6	1·5	4·5	·1	·4	·1	·1	9·0	5·6
Groundnuts	98·9	82·5	228·7	230·2	76·4	84·1	22·8	30·9	426·8	427·7
Maize	117·9	93·3	145·5	136·6	46·0	56·0	50·5	63·3	359·9	349·3
Millet (Sorghum)	57·5	41·0	196·5	166·9	245·3	262·3	206·0	208·1	705·2	678·3
Millet (Finger)	28·8	21·2	773·0	743·1	356·8	296·6	111·9	100·9	1,270·5	1,161·8
Millet (Bulrush)	—	—	·5	·2	5·4	5·8	—	—	5·9	6·0
Onions	—	—	—	—	—	—	2·0	3·3	2·0	3·3
Peas (Pigeon)	—	—	1·9	·1	241·9	180·6	1·1	·4	244·9	181·1
Peas (Field)	—	—	—	—	—	—	31·4	30·6	31·4	30·6
Plaintains	527·5	555·4	454·0	430·7	3·0	5·4	479·8	554·4	1,464·3	1,545·9
Potatoes (Sweet)	121·3	152·3	343·4	178·5	63·6	88·8	183·4	179·1	711·7	598·7
Potatoes (Solanum)	—	—	·2	·5	—	—	9·4	10·8	9·6	11·3
Rice	—	—	4·8	1·6	1·1	1·2	1·6	1·6	7·4	4·4
Simsim	6·5	6·3	20·4	18·0	203·3	216·4	4·8	2·8	235·0	243·6
Tobacco (Air-cured)	—	—	—	—	·7	1·2	3·7	1·9	4·4	3·1
Tobacco (Fire-cured)	1·7	·2	*	—	—	—	6·4	5·0	8·1	5·2
Tobacco (Flue-cured)	—	—	—	—	2·8	2·1	·5	·5	3·3	2·6
Total	1,959·0	1,924·0	3,526·2	3,151·3	1,860·2	1,896·4	1,474·3	1,525·1	8,819·4	8,497·2

* Under fifty acres.

(All figures corrected to nearest 100 acres).

CROP PRODUCTION

Estimated Acreages under Crops, 1959 and 1960—African Cultivation

BUGANDA PROVINCE

(*Thousand Acres*)

Crop	Mengo		Masaka		Mubende		Total	
	1959	1960	1959	1960	1959	1960	1959	1960
Beans (Mixed)	95·3	96·5	37·6	33·2	18·1	15·0	151·0	144·7
Beans (Soya)	4·5	4·0	—	·8	—	—	4·5	4·8
Cassava	53·6	74·8	8·3	15·0	6·6	4·5	68·5	94·2
Cocoa	·1	·1	*	*	*	*	·1	·1
Coffee (Arabica)	·6	·6	1·0	1·0	—	—	1·6	1·6
Coffee (Robusta)	329·2	345·7	96·4	113·9	15·1	16·2	440·7	475·8
Cotton	272·1	209·5	31·1	18·7	21·9	22·0	325·2	250·2
Gram	5·3	·2	—	·3	2·0	·1	7·3	·6
Groundnuts	69·0	46·6	17·3	24·3	12·5	11·5	98·9	82·5
Maize	77·1	56·0	34·6	31·6	6·2	5·7	117·9	93·3
Millet (Sorghum)	35·1	25·5	16·0	15·1	6·4	·4	57·5	41·0
Millet (Finger)	22·5	12·4	—	1·8	6·3	7·0	28·8	21·2
Plantains	328·6	334·6	183·8	201·7	15·1	19·1	527·5	555·4
Potatoes (Sweet)	90·2	123·9	16·2	14·6	14·9	13·8	121·3	152·3
Simsim	5·5	4·9	—	·1	1·0	1·4	6·5	6·3
Tobacco (Fire-cured)	—	—	—	—	1·7	·2	1·7	·2
Total ..	1,388·8	1,335·4	442·3	472·0	127·9	116·7	1,959·0	1,924·0

* Under fifty acres.

(All figures corrected to nearest 100 acres).

CROP PRODUCTION

Estimated Acreages under Crops, 1959 and 1960—African Cultivation

EASTERN PROVINCE

Thousand Acres

Crop	Busoga		Bukedi		Bugisu		Teso		Total	
	1959	1960	1959	1960	1959	1960	1959	1960	1959	1960
Beans (Mixed and Cow Peas)	25·1	35·1	39·9	13·6	25·4	26·2	89·4	100·2	179·8	175·0
Cassava	62·1	47·7	103·5	80·8	19·4	12·5	102·5	67·3	287·6	208·4
Cocoa	—	*	—	—	—	—	—	—	—	*
Coffee (Arabica)	—	—	—	—	24·0	24·1	*	*	24·0	24·1
Coffee (Robusta)	7·6	7·8	—	—	—	—	—	—	7·6	7·8
Cotton	380·7	392·1	204·1	152·4	51·5	56·2	220·5	224·4	856·8	825·2
Gram	—	—	—	—	—	—	1·5	4·5	1·5	4·5
Groundnuts	54·8	54·3	47·2	56·1	11·0	10·6	115·7	109·2	228·7	230·2
Maize	53·3	45·7	24·5	29·5	59·2	53·9	8·5	7·5	145·5	136·6
Millet (Sorghum)	2·1	2·7	22·6	32·6	8·5	8·8	163·3	122·9	196·5	166·9
Millet (Finger)	150·8	133·9	206·0	188·4	71·2	107·9	345·1	312·9	773·0	743·1
Millet (Bulrush)	—	—	—	—	—	—	·5	·2	·5	·2
Peas (Pigeon)	—	—	—	—	—	—	1·9	·1	1·9	·1
Plantains	196·9	197·2	54·0	30·0	200·0	200·0	3·2	3·5	454·0	430·7
Potatoes (Sweet)	97·4	74·4	46·1	28·6	15·9	10·1	184·0	65·3	343·4	178·5
Potatoes (Solanum)	—	—	—	—	·2	·5	—	—	·2	·5
Rice	·2	·4	4·0	·9	·1	*	·4	·3	4·8	1·6
Simsim	2·4	2·7	1·0	1·2	*	*	17·0	14·1	20·4	18·0
Total	1,033·4	994·0	753·1	614·0	486·3	510·8	1,253·5	1,032·5	3,526·2	3,151·3

* Under 50 acres.

(All figures corrected to nearest 100 acres).

CROP PRODUCTION

Estimated Acreages under Crops, 1959 and 1960—African Production

WESTERN PROVINCE

Thousand Acres

Crop	Ankole		Bunyoro		Kigezi		Toro		Total	
	1959	1960	1959	1960	1959	1960	1959	1960	1959	1960
Beans (Mixed, and Cow Peas)	21·4	19·5	8·8	6·3	56·3	58·8	39·1	43·6	125·7	128·2
Beans (Soya)	·5	·2	—	—	—	—	·1	·1	·5	·3
Cassava	16·2	13·5	38·7	36·8	2·1	2·7	61·3	40·7	118·3	93·7
Coffee (Arabica)	3·5	2·8†	—	—	·7	1·5	4·3	4·4	8·5	8·8
Coffee (Robusta)	7·1	7·3	1·4	1·5	1·1	1·1	4·6	4·8	14·1	14·7
Cotton	—	—	57·0	52·8	—	—	34·8	33·0	91·7	85·8
Grams	—	—	—	—	—	—	·1	·1	·1	·1
Groundnuts	5·5	10·0	8·7	8·1	4·2	5·8	4·4	7·1	22·8	30·9
Maize	5·2	4·9	6·9	7·1	25·0	36·6	13·4	14·8	50·5	63·3
Millet (Sorghum)	45·6	42·4	·9	·8	154·6	159·9	4·9	5·0	206·0	208·1
Millet (Finger)	15·6	13·3	19·5	16·1	64·8	52·9	12·0	18·6	111·9	100·9
Onions and Garlic	·9	·7	·2	·2	·4	·4	·4	2·0	2·0	3·3
Peas (Field)	6·2	4·8	·2	—	24·8	25·5	·2	·3	31·4	30·6
Peas (Pigeon)	—	*	·7	—	—	—	·4	·4	1·1	·4
Plantains	304·0	373·8	19·6	19·7	73·8	75·9	82·3	85·1	479·8	554·4
Potatoes (Sweet)	28·9	22·1	14·4	10·6	126·5	130·5	13·6	15·9	183·4	179·1
Potatoes (Solanum)	·2	·2	*	*	9·0	10·3	·2	·3	9·4	10·8
Rice	—	—	—	—	—	—	1·6	1·6	1·6	1·6
Simsim	*	*	4·7	2·8	—	—	*	*	4·8	2·8
Tobacco (Air-cured)	·7	·5	—	—	3·0	1·4	*	*	3·7	1·9
Tobacco (Fire-cured)	—	—	6·4	3·4	—	—	—	—	6·4	3·4
Tobacco (Flue-cured)	—	—	—	—	·5	·5	—	—	·5	·5
Total	461·5	516·0	188·1	166·2	547·1	563·8	277·7	277·5	1,474·2	1,523·5

* Under fifty acres.

† New measurement.

(All figures corrected to nearest 100 acres).

CROP PRODUCTION

Estimated Acreages under Crops, 1959 and 1960—African Cultivation

NORTHERN PROVINCE

(*Thousand Acres*)

Crop	Lango		Acholi		West Nile/Madi		Karamoja		Total	
	1959	1960	1959	1960	1959	1960	1959	1960	1959	1960
Beans (Mixed and Cow Peas) ..	34·0	46·7	30·9	15·0	55·1	67·0	·3	1·1	120·3	129·8
Cassava	53·7	49·6	43·7	34·6	104·2	125·0	·1	·2	201·7	209·5
Coffee (Arabica)	—	—	†	—	·6	·9	—	—	·6	·9
Coffee (Robusta)	—	—	—	—	·2	·2	—	—	·2	·2
Cotton	155·9	157·5	93·5	119·5	40·8	75·5	·8	2·2	291·0	355·1
Gram	—	·3	—	—	·1	·1	—	—	·1	·4
Groundnuts	23·0	29·4	28·9	28·4	23·8	24·8	·1	1·6	76·4	84·1
Maize	6·4	10·1	6·8	10·8	28·0	29·5	4·8	5·6	46·0	56·0
Millet (Sorghum)	97·2	108·0	44·6	34·5	12·9	14·9	90·6	105·0	245·3	262·3
Millet (Finger)	190·7*	141·9*	107·8	99·3	56·2	53·3	2·1	2·0	356·8	296·6
Millet (Bulrush)	—	—	5·4	5·8	—	—	—	—	5·4	5·8
Peas (Pigeon)	190·7*	141·9*	50·0	32·1	1·2	6·6	†	·1	241·9	180·6
Plantains	·7	1·9	·2	·6	2·1	2·9	—	—	3·0	5·4
Potatoes (Sweet)	23·5	39·9	23·4	27·6	16·5	21·1	·2	·2	63·6	88·8
Rice	·5	·2	·1	·2	·5	·7	†	—	1·1	1·2
Simsim	94·6	75·9	71·5	54·2	35·8	84·6	1·5	1·8	203·3	216·4
Tobacco (Air-cured)	—	—	—	—	·7	1·2	—	—	·7	1·2
Tobacco (Flue-cured)	†	†	1·0	·7	1·8	1·4	—	—	2·8	2·1
Total ..	871·0	803·3	507·6	463·8	380·6	509·7	101·1	119·6	1,860·2	1,896·4

* Interplanted.

† Under fifty acres.

(All figures corrected to nearest 100 acres)

CROP PRODUCTION

Quantities Marketed and Estimated Values (African Production), 1960

(Values Based on Prices paid to Growers)

Province/District	Coffee*	Seed Cotton		Tobacco Flue-cured (cured leaf)		Tobacco Flue-cured (green leaf)		Tobacco Air-cured (cured leaf)		Tobacco Fire-cured (cured leaf)		Total Value	
	Value	Quantity	Value	Quantity	Value	Quantity	Value	Quantity	Value	Quantity	Value	1960	1959
	£	*Tons*	£	*Tons*	£	*Tons*	£	*Tons*	£	*Tons*	£	£	£
Eastern—													
Busoga	171,920	63,606	3,159,260	—	—	—	—	—	—	—	—	3,331,180	2,890,948
Bugisu	1,037,466	5,255	257,623	—	—	—	—	—	—	—	—	1,295,089	988,216
Bukedi	826	25,137	1,205,796	—	—	—	—	—	—	—	—	1,206,622	1,290,563
Teso	—	18,850	923,364	—	—	—	—	—	—	—	—	923,364	1,318,347
Total ..	1,210,212	112,848	5,546,043	—	—	—	—	—	—	—	—	6,756,255	6,488,074
Northern—													
Lango	—	14,415	731,003	2	598	—	—	—	—	—	—	731,601	1,148,653
Acholi	—	10,915	554,261	77	21,577	711	7,492	—	—	—	—	583,330	752,984
Karamoja	—	119	6,232	—	—	—	—	—	—	—	—	6,232	9,654
West Nile/Madi ..	13,225	8,854	442,606	11	2,739	2,647	27,395	317	35,487	—	—	521,452	590,845
Total ..	13,225	34,303	1,734,102	90	24,914	3,358	34,887	317	35,487	—	—	1,842,615	2,502,136
Western—													
Bunyoro	16,075	4,793	238,889	—	—	—	—	—	—	685	64,994	319,958	538,840
Toro	403,326	4,509	230,308	—	—	—	—	—	—	—	—	633,634	631,067
Kigezi	24,490	—	—	—	—	641	6,072	—	—	—	—	30,562	18,282
Ankole	193,272	—	—	—	—	—	—	—	—	—	—	193,272	285,745
Total ..	637,163	9,302	469,197	—	—	641	6,072	—	—	685	64,994	1,177,426	1,473,934
Buganda—													
Mengo	7,712,320	47,396	2,483,479	—	—	—	—	—	—	—	—	10,195,799	10,674,445
Masaka	3,730,985	2,373	118,131	—	—	—	—	—	—	—	—	3,849,116	4,259,999
Mubende	191,959	3,367	166,412	—	—	—	—	—	—	28	2,679	361,050	376,693
Total ..	11,635,264	53,136	2,768,022	—	—	—	—	—	—	28	2,679	14,405,965	15,311,137
PROTECTORATE TOTAL	13,495,864	209,589	10,517,364	90	24,914	3,999	40,959	317	35,487	713	67,673	24,182,261	25,775,281

* For details of types of production and tonnage, *see* Appendix IV (*b*).

NOTE.—Crops included in this table are those for which quantities marketed and estimated values are known with accuracy. Crops such as maize, groundnuts, etc., of which considerable quantities are marketed are not included as reliable estimates of quantities and value are not available. All figures in this table given to nearest ton and £.

*COFFEE PRODUCTION, 1960

Quantities Marketed and Estimated Values

(Values Based on Prices paid to Growers)

Province/District	Arabica						Robusta						Total Value
	Parchment		Rough-Hulled		Dried Cherry		Rough-Hulled		Dried Cherry		Clean		
	Quantity	Value	Quantity	Value	Quantity	Value	Quantity	Value	Quantity	Value	Quantity	Value	
	Tons	£	*Tons*	£	*Tons*	£	*Tons*	£	*Tons*	£	*Tons*	£	£
Eastern—													
Busoga	—	—	—	—	—	—	—	—	3,123	171,920	—	—	171,920
Bugisu	5,791	1,013,722	—	—	424	23,744	—	—	—	—	—	—	1,037,466
Bukedi	—	—	—	—	—	—	—	—	15	826	—	—	826
Teso	—	—	—	—	—	—	—	—	—	—	—	—	—
Total ..	5,791	1,013,722	—	—	424	23,744	—	—	3,138	172,746	—	—	1,210,212
Northern—													
Lango	—	—	—	—	—	—	—	—	—	—	—	—	—
Acholi	—	—	—	—	—	—	—	—	—	—	—	—	—
Karamoja	—	—	—	—	—	—	—	—	—	—	—	—	—
West Nile	1	241	65	11,722	13	1,081	1	71	2	110	—	—	13,225
Total ..	1	241	65	11,722	13	1,081	1	71	2	110	—	—	13,225
Western—													
Bunyoro	—	—	—	—	—	—	—	—	292	16,075	—	—	16,075
Toro	—	—	870	158,534	—	—	1,998	244,792	—	—	—	—	403,326
Kigezi	—	—	72	13,082	—	—	—	—	206	11,408	—	—	24,490
Ankole	—	—	161	29,139	776	62,600	2	213	1,841	101,320	—	—	193,272
Total ..	—	—	1,103	200,755	776	62,600	2,000	245,005	2,339	128,803	—	—	637,163
Buganda—													
Mengo	—	—	22	3,930	570	45,949	2,481	307,334	94,704	5,788,903	13,223†	1,566,204	7,712,320
Masaka	—	—	11	1,947	156	12,573	1,077	138,176	23,738	1,447,899	17,953‡	2,130,390	3,730,985
Mubende	—	—	—	—	28	2,258	—	—	2,769	152,443	315	37,268	191,959
Total ..	—	—	33	5,877	754	60,780	3,558	445,510	121,211	7,389,235	31,491	3,733,862	11,635,264
PROTECTORATE TOTAL	5,792	1,013,963	1,201	218,354	1,967	148,205	5,559	690,586	126,690	7,690,894	31,491	3,733,862	13,495,864

All figures in this table given to the nearest ton and £.

* For African and non-African estates, *see* Appendix VI.

† Includes 27·3 tons Arabica.

‡ Includes 96·3 tons Arabica.

OVERSEAS EXPORTS OF AGRICULTURAL PRODUCE, 1958–1960

Appendix V (a)

Article	Unit	Quantities			Value in £		
		1958	1959	1960	1958	1959	1960
Oilseeds and Products:							
Cotton Seed	*Tons*	402	—	39	7,547	—	720
Castor Seed	*Tons*	2,614	2,378	1,684	119,118	106,776	90,558
Groundnuts	*Tons*	7,370	3,158	9,507	343,102	168,217	549,962
Sesame Seed	*Tons*	554	423	356	40,819	25,276	20,904
Sunflower Seed	*Tons*	172	262	292	5,073	7,899	8,271
Cotton Seed Cake	*Tons*	65,154	71,731	71,643	1,065,989	1,623,809	1,661,492
Cotton Seed Oil	*Tons*	2,097	2,770	93	238,635	265,373	11,559
Groundnut Oil	*Tons*	34	98	—	3,873	8,296	—
Other Vegetable Oils	*Tons*	2	15	4	238	1,997	550
Other Oilseed Cake, Meals and other Vegetable Oil residues	*Tons*	923	563	—	22,688	16,384	—
Fibres:							
Cotton, Raw	*Tons*	69,199	66,667	58,933	18,141,400	15,427,910	14,930,252
Sisal	*Tons*	394	580	621	22,550	38,428	51,585
Beverage Crops and Tobacco:							
Coffee, not roasted	*Tons*	78,692	88,406	116,818	20,827,270	18,687,939	16,987,063
Tea	*Tons*	2,673	3,290	3,861	979,210	1,186,223	1,452,600
Unmanufactured Tobacco	*Tons*	4	14	86	820	3,787	17,710
Spices and Drugs:							
Chillies	*Tons*	201	143	201	31,017	26,780	53,845
Papain	*Tons*	7	10	5	18,839	16,728	6,179
Vanilla	*Tons*	2	3	2	5,011	15,310	12,960
Beans and Pulses:							
Soya Beans	*Tons*	670	437	443	23,679	16,323	13,785
Others	*Tons*	342	1,322	3,336	20,515	45,123	99,308
Cereals:							
Maize (unmilled)	*Tons*	22	—	1,554	250	—	26,872
Maizemeal	*Tons*	—	—	3,486	—	—	46,581
Other (unmilled)	*Tons*	1	1	8	98	83	230
Miscellaneous:							
Rubber	*Tons*	3	10	—	550	2,362	—
Ethyl Alcohol	*Imp. gal.*	320	320	7,360	89	92	2,263
Sugar	*Tons*	30	1	—	1,766	75	—
				Total £	41,920,146	37,691,190	36,045,186

Source: East African Customs and Excise Department—Table of Domestic Exports, 1960.

EXPORTS OF AGRICULTURAL PRODUCE TO KENYA AND TANGANYIKA, 1960

Article	Unit	Quantities			Value in £		
		To Kenya	To Tanganyika	Total	To Kenya	To Tanganyika	Total
Oilseeds and Products:							
Cotton Seed Cake	*Tons*	2,494	—	2,494	41,493	—	41,493
Other Oilseed Cakes, Meals and other Vegetable Oil residues	*Tons*	870	—	870	24,473	—	24,473
Sesame Seed	*Tons*	5	—	5	277	—	277
Groundnuts	*Tons*	19	105	124	1,006	5,295	6,301
Cotton Seed Oil	*Tons*	6,686	1,323	8,009	820,581	163,532	984,113
Groundnut Oil	*Tons*	57	10	67	7,132	1,389	8,521
Other Vegetable Oils	*Tons*	35	2	37	4,020	276	4,296
Beverage Crops and Tobacco:							
Coffee, not roasted	*Tons*	289	—	289	22,515	—	22,515
Tea	*Tons*	187	57	244	68,145	22,526	90,671
Unmanufactured Tobacco	*Lb.*	4,632,399	197,326	4,829,725	707,830	16,645	724,475
Cigars, Cheroots and Manufactured Tobacco	*Lb.*	1,142	284	1,426	551	136	687
Fibres:							
Cotton Linters	*Tons*	44	17	61	4,198	1,320	5,518
Spices							
Chillies	*Tons*	9	1	10	776	77	853
Other	*Tons*	77	43	120	9,930	4,796	14,726
Pulses:							
Beans, Peas and Lentils	*Tons*	786	619	1,405	20,436	14,381	34,817
Cereals:							
Maize (unmilled)	*Tons*	—	66	66	—	734	734
Maizemeal	*Tons*	—	820	820	—	15,669	15,669
Millet	*Tons*	86	455	541	1,894	9,285	11,179
Other	*Tons*	1	—	1	38	—	38
Miscellaneous:							
Rubber	*Tons*	44	—	44	10,224	—	10,224
Ethyl Alcohol	*Imp. gal.*	107,250	33,854	141,104	28,425	10,055	38,480
Sugar	*Tons*	30,877	1	30,878	1,449,160	72	1,449,232
Jaggery	*Tons*	100	104	204	3,239	2,836	6,075
Molasses	*Tons*	120	—	120	1,453	—	1,453
				Total £	3,277,796	269,024	3,496,820

Source: East African Customs and Excise Department—Table of Interterritorial Transfers of Goods, 1960.

CROP PRODUCTION, UGANDA

Estate Production, 1959 and 1960

Crop	Estimated Acreage		Estimated Production			
			Quantity		Value	
	1959	1960	1959	1960	1959	1960
			Tons	*Tons*	£	£
Coffee (Robusta)‖	27,729*	29,543‡	7,882†	4,728§	1,596,972	650,072
Coffee (Arabica)‖	3,016	2,516	363	380	94,380	89,347
Sugar ..	34,356	37,045	81,075	91,117	3,912,545	4,397,117
Tea	15,828	16,840	4,357	4,594	1,517,179	1,727,720
Sisal	6,000	6,000	506	632	27,500	36,000
Total ..	86,929	91,944	—	—	7,148,576	6,900,256

* Includes 4,482 acres on African estates.
† Includes 1,352 tons African estate production.
‡ Includes 4,582 acres on African estates.
§ Includes 386 tons on African estates.
‖ Season's production, clean coffee. Bearing acreages only.

POPULATION AND AVAILABILITY OF LAND

Province/District	Total area	Area of land excluding open water and reserved forests	Cultivated area	Population*	Population density	Cultivated land per head of population	Estimated available land per head of population	Ratio of available land to cultivated land
	Sq. miles	*Sq. miles*	*Thousand Acres*		*Per sq. mile*	*Acres*	*Acres*	
Buganda—								
Mengo	14,589	10,047	1,283	1,294,879	129	1·0	4·97	5·0
Masaka	8,122	3,969	416	440,180	111	0·9	5·77	6·1
Mubende	2,679	2,581	117	99,069	38	1·2	16·67	14·1
TOTAL ..	25,390	16,597	1,816	1,834,128	111	1·0	6·45	6·6
Eastern—								
Busoga	6,876	3,219	747	660,507	205	1·1	3·12	2·8
Bugisu and Mbale Township ..	1,597	1,166	416	361,318	310	1·2	2·07	1·8
Bukedi	1,770	1,701	444	397,650	234	1·1	2·74	2·5
Teso	4,990	4,533	742	453,474	100	1·6	6·40	3·9
TOTAL ..	15,233	10,619	2,349	1,872,949	176	1·3	3·63	2·9
Northern—								
Acholi	11,176	10,703	383	285,530	27	1·3	23·99	17·9
Lango	4,898	4,519	590	352,943	78	1·7	8·19	4·9
Karamoja	11,472	10,336	122	171,945	17	0·7	38·47	54·2
West Nile/Madi ..	6,061	5,294	582	434,553	82	1·3	7·80	5·9
TOTAL ..	33,607	30,852	1,676	1,244,971	40	1·4	15·86	11·8
Western—								
Bunyoro	6,011	4,198	166	126,875	30	1·3	21·18	16·2
Toro	5,380	4,319	260	347,479	80	0·8	7·95	10·6
Ankole	6,320	5,621	419	529,712	94	0·8	6·79	8·6
Kigezi	2,040	1,757	566	493,444	281	1·2	2·28	2·0
TOTAL ..	19,751	15,895	1,411	1,497,510	94	0·9	6·79	7·2
PROTECTORATE TOTAL ..	93,981	73,963	7,253	6,449,558	87	1·1	7·34	6·8

*1959 Census.

PRINCIPAL AGRICULTURAL LEGISLATION

Subject	Ordinance No.	Legal Notice No.	Short Title	Objects
Coffee	1	—	Coffee (Export Duty) Ordinance, 1960	To amend and consolidate the law relating to the export of coffee.
		67	Coffee (Export Duty) Rules, 1960 ..	To regulate the payment of export duty.
		173	Coffee Ordinance, 1959	To increase hullery processing quotas.
		223	Coffee (Grading and Export)(Amendment) Rules, 1960	To regulate the grading and export of pulped and washed coffee.
		174	Bugisu Coffee Rules, 1960.. ..	To regulate the growing and processing of coffee in Bugisu District.
Cotton	—	197	Cotton Rules, 1960	To amend and consolidate the law relating to the marketing, ginning and baling cotton.
Produce	5	—	Produce Marketing (Amendment) Ordinance, 1960	To limit the application of main Ordinance regarding controlled produce to specified areas in the Protectorate.
	—	87	Produce Marketing Ordinance, 1953	To declare groundnuts to be controlled produce in Busoga District.
Famine	—	35	Lango Famine Granary Bye-laws, 1960..	To control famine granaries in Lango.
Agricultural Bye-laws ..	—	84	Bunyoro-Kitara Agricultural Bye-laws, 1960	To improve the standard of crops and soil conservation in Bunyoro District.
	—	269	The Cash Crop (Revocation) Bye-laws, 1960	To revoke the Cash Crop Bye-Laws, 1952, in Ankole District.

DEPARTMENT OF AGRICULTURE

STAFF POSTINGS AS AT 31st DECEMBER, 1960.

A. ADMINISTRATIVE AND EXTENSION SERVICES

Title	Name	Station
Director of Agriculture ..	E. Williams, O.B.E.	Entebbe.
Deputy Director of Agriculture ..	G. W. Anderson	Entebbe.
Assistant Director of Agriculture ..	G. D. Badger	Entebbe.
Assistant Directors of Agriculture (Field)	Major W. H. Edwards, M.C. ..	Kampala.
	D. J. Parsons, M.C.	Mbale.
Senior Agricultural Officers ..	A. E. B. Williams	Gulu.
	R. G. Hampson, D.F.C. ..	Fort Portal.
Chief Agricultural Development Officer	P. Evans-Jones, M.B.E. ..	Namalere.
Agricultural Offcers	J. R. Low	Mbale.
	E. W. King	Mbale.
	R. B. Johnston	Seconded to St. Helena.
	A. G. Ousley-Smith	Arua.
	A. R. Dunbar	Mbale.
	W. Hadlow	Kawanda.
	A. D. R. Ker	Mbale.
	R. E. H. Atkinson	Fort Portal
	A. R. Humphrys	Masaka.
	K. M. L. Matthews	Lira.
	J. C. Phillips	Jinja.
	J. B. Warren	Serere.
	G. R. W. Onaba	Masaka.
	J. S. Laker	Gulu.
	L. S. Todd	Soroti.
Agricultural Engineer	D. J. Innes	Namalere.
Agricultural Officers (Uganda) ..	G. L. Kigundu, M.B.E. ..	Kampala.
	H. R. Berunga, M.B.E. ..	Mubende.
	Z. H. Kwebiha	Seconded as Katikiro of Bunyoro.
	P. M. Sali	Mityana.
	S. M. N. Kijambu	Mpigi.
	L. B. Ellis	Kampala.
	G. A. Fennell	Kampala.
	A. G. K. Will	Fort Portal.
Senior Assistant Agricultural Officers and Assistant Agricultural Officers	S. M. B. Mutagwanya ..	Mukono.
	T. K. Otim	Seconded as Rwot Adwong to Lango African Local Government.
	J. M. Sekimpe	Mpigi
	J. G. Wanyoto	Seconded to Bugisu African Local Government.
	R. K. Kachope	Seconded to Bunyoro African Local Government.
	A. Kamya	Bukalasa.
	J. B. O. Baguma	Fort Portal.

Title	Name	Station
Senior Assistant Agricultural Officers and Assistant Agricultural Officers (continued)	O. L. Lalobo	Seconded to Acholi African Local Government.
	Y. E. Onaba	Soroti.
	J. M. Luzinda	Jinja.
	H. G. N. Semambo	Mukono.
	E. B. Sarulo	Mbale.
	A. K. Mulera	Masaka.
	Z. K. Banagaija	Fort Portal.
	E. Rwakaikara	Seconded to Bunyoro African Local Government.
	P. S. Bulera	Mpigi.
	Y. Yigga	Fort Portal.
	A. G. Kibulo	Jinja.
	J. N. Kimoimo	Jinja.
	S. L. Takirambude	Mityana
	I. M. Bulikiro	Hoima.
	H. W. Muloki	Seconded as Kyabazinga of Busoga.
	Z. K. Sekidde	Jinja.
	Z. N. Wanyama	Mbale.
	S. B. Kikule	Masaka.
	D. E. Kawalya	Mubende.
	J. S. Musisi	Namalere.
	F. J. Luswata	U.K. on Scholarship.
	P. F. Kunya	U.K. on Scholarship.
	S. K. Sengendo	U.K. on Scholarship.
	J. C. Ssozi	U.K. on Scholarship.
	I. L. Lubwa	Kitgum.
	N. O. Z. Sakio	Soroti.
	J. M. Byagagaire	U.K. on Scholarship.
	E. B. Galukande	Kampala.
	G. S. K. Byakika	U.K. on Scholarship.
	P. E. K. Sibyetikerwa ..	U.K. on Scholarship.
	G. W. B. Gowa	Lira.
	J. J. Oloya	U.K. on Scholarship.
	W. O. Lutara	Seconded to Acholi African Local Government.
	J. S. Ikara	Soroti.
	P. Menya	Masaka.
	F. X. Lubega	Mbarara.
	A. M. Mugwanya	Mityana.
	J. Obbo	Mbale.
	F. X. Tebandeke	Mbale.
	J. Walimbwa	Mbale.
	S. L. L. Kyeyune	Mukono.
	F. X. Luyombya	Mbarara.
	P. C. Ntakirutimana	Kabale.
Senior Field Officers (Agriculture) and Field Officers (Agriculture)	L. Green	Kampala.
	A. J. S. Armitage	Namalere.
	K. M. I. Popiel, M.B.E. ..	Mpigi.
	H. B. Miller	Gulu.

A. Administrative and Extension Services—*continued*

Title	Name	Station
Senior Field Officers (Agriculture) and Field Officers (Agriculture) (continued)	J. Tilley	Kigumba.
	J. M. Trathen	Soroti.
	D. C. Collin	Fort Portal.
	Major T. F. Ellis	Kabale.
	A. L. Stephens, M.B.E.	Serere.
	J. G. Smithson	Namalere.
	M. F. Merchant	Gulu.
	J. H. Woodruffe	Kabale.
	W. A. Kneale	Hoima.
	Major C. M. Lamb	Kotido.
	C. P. E. Wadey	Mityana.
	F. Bateman	Moroto.
	P. W. Hay	Moyo.
	I. D. Gedye	Mbarara.
	R. J. Leach	Moroto.
	R. J. Crichton	Mubende.
	G. K. Petrie	Fort Portal.
	M. H. F. Low	Hoima.
	L. W. Calcutt	Bowa.
	E. A. O'Dowd	Mbarara.
	H. D. Paterson	Jinja.
	G. M. Ross	Mukono.
	Major J. E. Ludlow	Mukono.
	W. G. Foggon	Kawanda.
	D. J. Salmon	Kabale.
	N. G. Tuck	Soroti.
	H. J. McKilligan	Lira.
	Mrs. C. Ross	Kampala.
	W. J. McClement	Gulu.
	J. P. L. M. A. Peeters	Mbale.
	P. J. Barrow	Mpigi.
	M. Astbury	Mpigi.
Administrative Secretary	E. B. Buckingham	Entebbe
Accountant	J. F. T. S. R. Lobo, M.B.E.	Entebbe.
Establishment Officer	A. S. Bleasdale	Entebbe.
Senior Accounts Officer	J. E. de Souza	Entebbe.

B. EDUCATION

Principals, Major Farm Institutes	O. S. Swainson	Bukalasa.
	J. M. Arthurs	Arapai
Agricultural Officers (Women)	Miss J. V. Wilmott	Bukalasa.
Agricultural Officers	E. S. T. Marshall	Arapai.
	G. K. Reakes-Williams	Bukalasa.
	T. E. F. Weavind	Bukalasa.
	G. S. Scott	Arapai.
Biologists	R. C. Edworthy	Bukalasa.
	T. A. Geyer	Arapai.
Senior Assistant Agricultural Officers and Assistant Agricultural Officers	E. Kyagaba	Bukalasa.
	P. Sempa	Bukalasa.
	C. M. Kapalaga	Bukalasa.
	A. A. Kalanzi	Bukalasa.

A. ADMINISTRATIVE AND EXTENSION SERVICES—*continued*

Title	Name	Station
Senior Assistant Agricultural Officersand Assistant Agricultural Officers (continued)	R. A. Irigiei	Arapai.
	J. C. M. Ddungu	Arapai.
Senior Field Officers and Field Officers	J. L. McCumiskey	Bukalasa.
	D. Adams	Mukono.
	J. B. Mott	Arapai.
	P. W. Taylor	Ikulwe.
	J. R. Dorrell	Tororo.
	I. D. Hamilton	Bukalasa.
	A. W. J. Todd	Bukalasa.
	M. J. Wegg-Prosser	Arapai.
	R. C. Pearson	Bukalasa.
	D. A. Trotman	Fort Portal.
	R. G. Bartlett	Lira.
Bursars	G. H. G. Stacey	Bukalasa.
	W. V. d'Lima	Arapai.

C. RESEARCH DIVISION

Senior Research Officers ..	J. Bowden	Kawanda.
	W. R. Mills	Serere.
Senior Entomologists and Entomologists	B. D. Rennison	Kawanda.
	W. R. Ingram	Kawanda.
	J. C. Davies	Serere.
	D. N. McNutt	Mbale.
Senior Chemists and Chemists ..	D. Stephens	Kawanda.
	B. Butters	Kawanda.
Senior Botanist and Botanists ..	D. G. Thomas	Kawanda.
	D. J. Butt	Kawanda.
	J. W. Dancer	Kawanda.
Senior Agronomist and Agronomists	G. E. D. Tiley	Serere.
	A. D. H. Joblin	Serere.
Soil Survey Officer	J. F. Harrop	Kawanda.
Agricultural Officers	C. R. Horrell	Serere.
	T. H. Stobbs	Kawanda.
Senior Assistant Agricultural Officers and Assistant Agricultural Officers	Y. K. Musisi	Kawanda.
	H. D. Mubiru	Kawanda.
	Z. K. Katerega ..	Entebbe.
	S. K. Mukasa	Kawanda.
	T. R. Odhiambo	U.K. on Scholarship.
	D. M. Patel	Kawanda.
Senior Field Officers and Field Officers	K. E. Woodcock	Mbale.
	T. R. Jones	Kawanda.
	J. G. Wilson	Kasese.
	J. R. Mayne	Kawanda.
	J. D. Sorrie	Serere.
	S. E. Mabey	Kituza.
	R. J. Cochrane	Serere.
	D. E. H. Clegg	Kituza.

Title	Name	Station
Curator, Botanic Gardens ..	C. Sandison	Entebbe.
Executive Officer	Lt.-Col. D. Macdonald ..	Kawanda.
Spectographer	E. W. Hughes	Kawanda.
Librarian/Abstractor	Miss C. M. Horn	Kawanda.

D. CROP MARKETING AND INDUSTRIES DIVISION

Deputy Director of Agriculture (Crop Industries)	T. S. Jones, O.B.E.	Entebbe.
Secretary/Accountant	E. H. Jones	Entebbe.
Economic and Marketing Assistant	T. Boothroyd	Entebbe.
Marketing Officers	J. T. Cowie	Kawanda.
	N. J. P. Hewett, B.E.M. ..	Fort Portal.
	P. J. Boustead	Mbale.
	D. A. Sims	Kampala.

E. BUGISU COFFEE DEVELOPMENT SCHEME

Field Officers	W. P. Beattie	Mbale.
	V. V. Millett	Mbale.
	F. P. Smyth	Mbale.
	R. M. Baker	Mbale.

F. KIGEZI TEA SCHEME

Field Officer	M. J. Montgomerie	Kabale.

G. COFFEE DEVELOPMENT SCHEME—WESTERN AND NORTHERN PROVINCES

Field Officer	A. I. M. van der Hoorn ..	Mbarara.

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